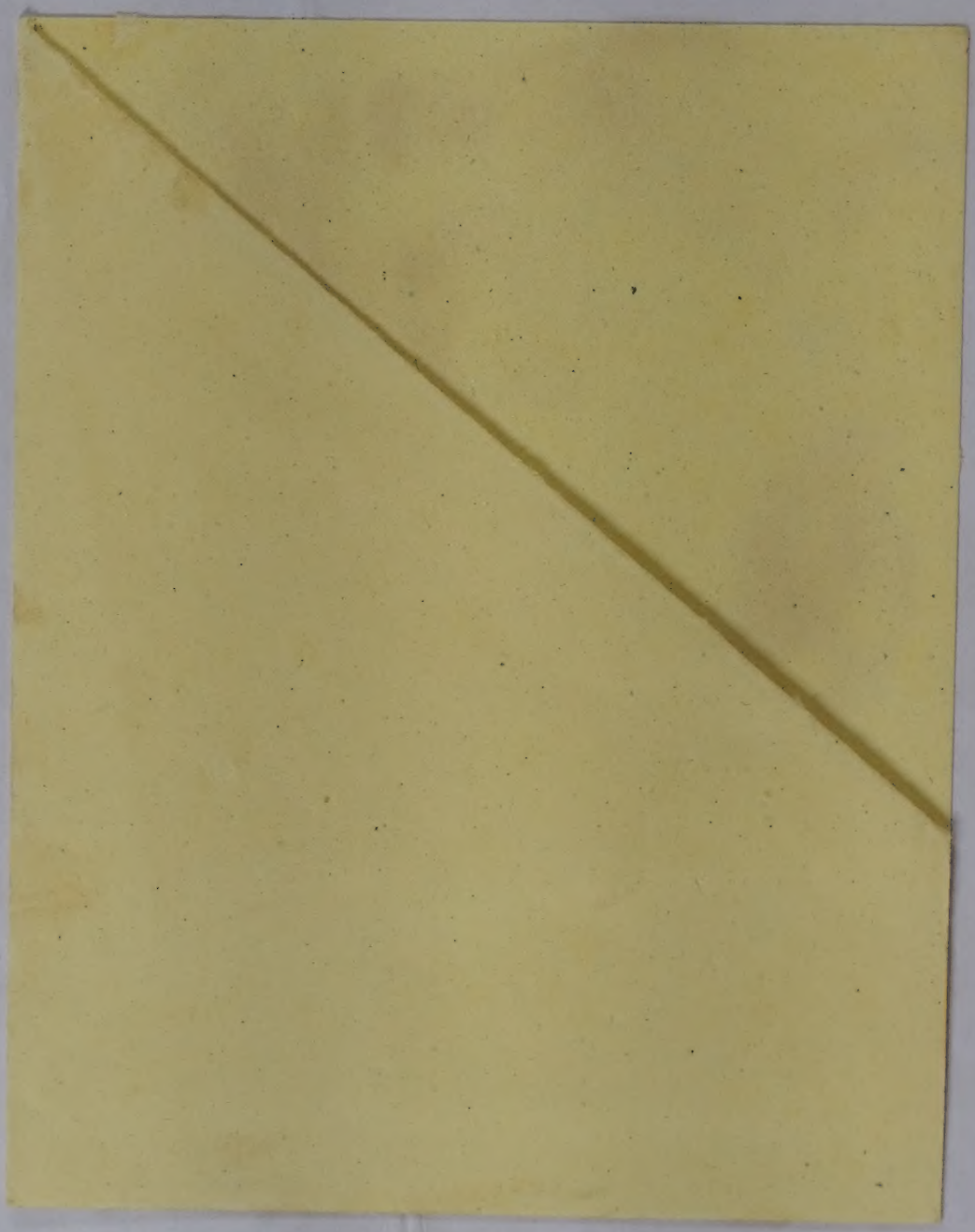
FORESTS AND PEOPLE

BHARAT DOGRA

THE EFFORTS IN WESTERN HIMALAYAS TO RE-ESTABLISH A LONG-LOST RELATIONSHIP

Himalaya Darshan Prakashan Samiti
C/o Yogesh Bahuguna, Shivanand Ashram, Rishikesh

857



COMMUNITY HEALTH CELL
/1 St. Mark's Road, Bangalore – 560 001

FORESTS AND PEOPLE

The efforts in Western Himalayas to re-establish a long-lost relationship.

BHARAT DOGRA

1980

HIMALAYA DARSHAN PRAKASHAN SAMITI
C/o Yogesh Bahuguna,
Shivanand Ashram,
Rishikesh

First Published, 1980

Copy right BHARAT DOGRA

Publishers :

Himalaya Darshan Prakashan Samiti
C/o. Yogesh Bahuguna,
Shivanand Ashram, Rishikesh

Printers :
Calley Printers, E 288, Devnagar

NEW DELHI-110005.
Writer's Address :
Bharat Dogra, C-1/51, Janakpuri,
NEW DELHI-110058.

857
E-120

COMMUNITY HEALTH CELL
47/1, (First Floor) St. Marks Road,
Bangalore - 560 001.

DEDICATED TO

MADHU

my friend, my wife

PREFACE

When I first started writing on environmental issues, I was shocked to note that in most official documents on this subject the people appear as the worst enemy of their surrounding environment, hell-bent on destroying forest and pasture lands. And concomitantly, the policy-prescriptions that are laid down are almost wholly in terms of laying this restriction on the local villagers and that. The fact that the people can live in harmony with their surrounding environment is just not considered.

Yet the truth is that the ecology of a region can never be protecd as long as the people living here are tied in a hostile, as opposed to harmonious, relationship with it. The problem is not one of curbing this hostile relationship by imposing a few restrictions, but a more structural one of demolishing such a relationship and replacing it with a new protective relationship.

It has been my endeavour during the past two years to study and examine the possibilities of such a structural transformation in the relationship between man and environment in a region the hills of Uttar Pradesh which has witnessed tremendous ecological ruin in recent years. The result of my study, included in the pages which follow, is for the readers to judge.

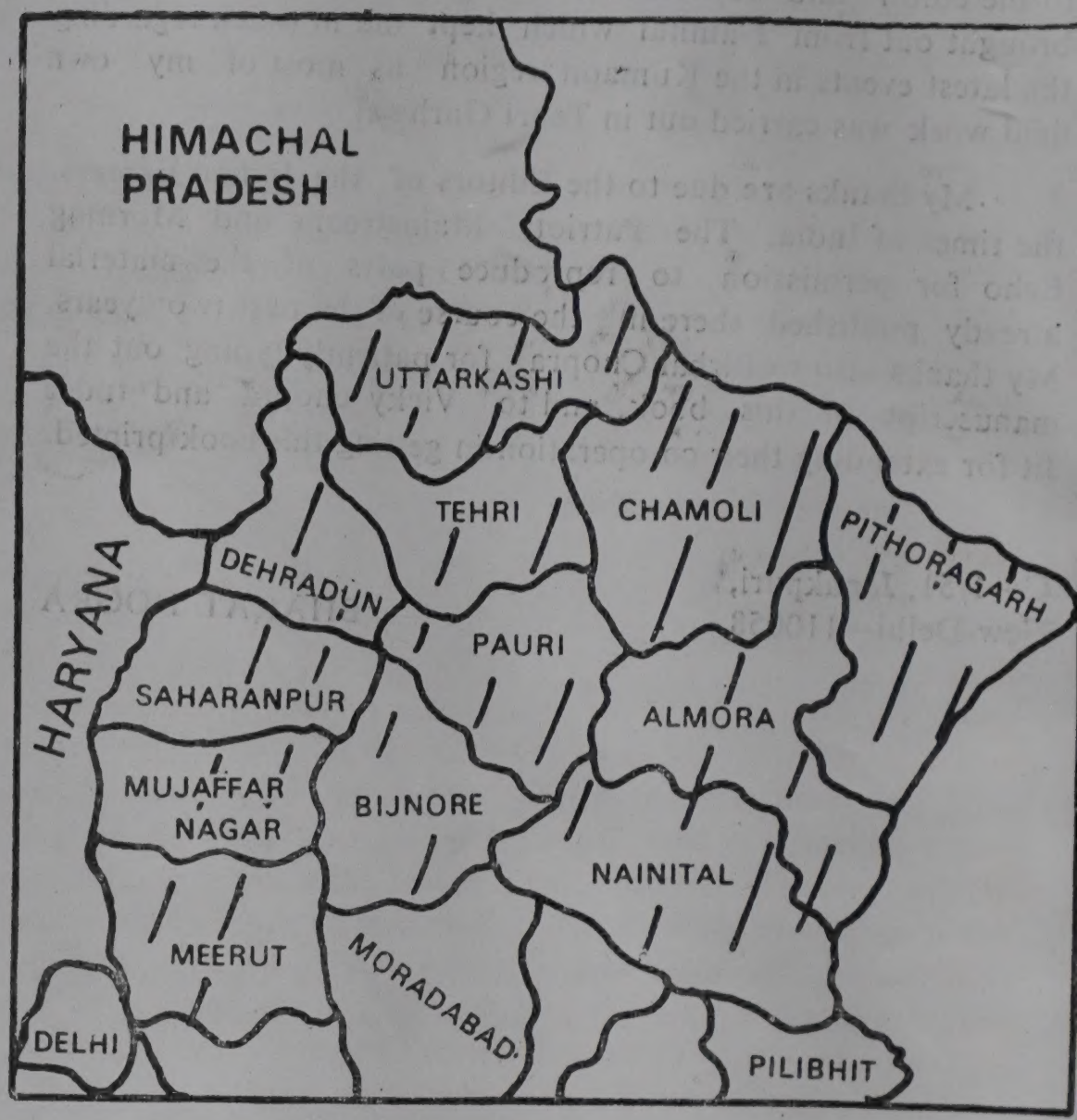
The list of the local people who helped me in writing this book by providing information and answering my vexing questions is too long to be given here, but I would like to acknow-

ledge my heavy debt to all of them. I am also grateful to the authors of official reports, specially the Krishna Murari Tiwari report, which I consulted for my stndy. My thanks are also due to the editor and reporters of 'Nainital Samachar', a tabloid brought out from Nainital which kept me in touch regarding the latest events in the Kumaon region as most of my own field work was carried out in Tehri Garhwal.

My thanks are due to the Editors of the Indian Express, the times of India, The Patriot, Mainstream and Morning Echo for permission to reproduce parts of the material already published there in the course of the past two years. My thanks also to Birbal Chopra for patiently typing out the manuscript of this book, and to Vicky chopra and Inder Jit for extending their co-operation in getting this book printed.

C—1/51, Janakpuri,
New-Delhi—110058

BHARAT DOGRA



Map--Uttar Khand And Neighbouring Region.

|_|—Uttar Khand

1. This map is only a rough approximation.
2. Illustration is not to scale

FOREWORD

In recent years many like myself had been greatly intrigued by sporadic references in the newspapers to the popular resistance movement undertaken by the hillmen of Garhwal known as 'Chipko', in order to protect their forests, especially in the ecologically sensitive catchment areas of Himalayan rivers, from the rapacity of timber licensees and contractors of the Forest Department. It was only a short while ago that I had the welcome opportunity of listening at first hand to an enlightening discourse on the subject by the Father of the movement. Shri Sunder Lal Bahuguna himself. I thus feel privileged to have been invited to write a Foreword for this book on the Forests and People of Uttarkhand (Western Himalayas) which, besides much useful factual information, presents a graphic saga of the unique Chipko movement. Starting initially as a popular protest by local villagers against the indiscriminate felling of forest trees by *chipko-ing*' or hugging them, the movement has gradually expanded into one for improving the genral ecological conditions in the hilly regions of the Garhwal Himalayas, side by side with the economic amelioration of the inhabitants who depend for their livelihood directly or indirectly on the 'sagacious' management of the forests. At a time when forests everywhere in the country are being thoughtlessly despoiled through the short-sighted cupidity of the governments of the day, on the pretext of often dubious economic development, this is an exemplary exercise. In the context of the prevading helplessness, bordering on despair, felt by all right thinking people and conservationists at failure to impress on their political masters the folly of precipitating short-term solutions, direct action of the Chipko variety seems the only effective answer: thus the book is timely and of special relevance.

The Chipko movement provides an object lesson in what may be achieved in the matter of creating a dynamic public awareness by a handful of selfless and dedicated activists with the well-informed cooperation of the people.

It is to be hoped that the book will be widely read and studied, and will help to dispel some of the prevading dejection among conservationists and the 'common' man who cares.

SALIM ALI

CONTENTS

PART-I

The Himalayan Tragedy

1. Spare This Tree
2. Distress In Shangri-La
3. Deluge In The Himalyas
4. Floods And Famines
5. The Forests of Uttar Khand
6. The Unsettled Refugees
7. Science of Tree Slaughter

PLATES

PART-II

And A Ray of Hope

8. The Beginning
9. Growth
10. Flowering
11. Many Branches
12. Nurturing A Tree
13. Forest—Labour—Coffin For Relief

APPENDIX

Spare This Tree !

WHAT do these villagers know about ecology ? What do they know about forestry ? They only know how to destroy trees—Senior Forestry Department official of Almora in conversation with the author, September, 1977.

Brother, this forest is our maternal home. From this we satisfy so many of our needs. Do not axe it. If you do so, landslides will ruin our homes and fields.—Gaura Devi, a woman of Reni village in Chamoli district to labourers come to fell trees in Reni forest, March 1974.

1st February, 1977. Nearly 500 people gathered in the Advani forest of Hemvalghati region, Tehri Garhwal district, heard the distant din of approaching vehicles For a short while the slogan-shouting stopped as people strained their ears to make out from this dim sound what the approaching vehicles could be. Then, on the last visible portion of the serpentine hilly road appeared a jeep, then another and then one more. Last came two trucks, exuding thick clouds of smoke.

Now there could be no mistaking the identity of the approaching caravan. "*The police has come*" said one of the young men with an air of finality, his eyes moving from the approaching vehicles to the colourful gathering of men, women and children before him.

Then, louder than ever before these Himalyan hills reverbated with the six words which had shattered the calm and quiet of this secluded forest since morning.

Aaj Himalya Jagega
Krur Kulhara Bhagega
The Himalyas will awake today—
The cruel axe will be chased away.

The source of all these high voltage emotions—nearly two dozen axes and saws lay unconcerned about 50 metres away from the crowd, and near them stood nearly an equal number of guskha labourers. These labourers had been summoned by a contractor, in turn hired by a bigger contractor or 'maaldaar's to whom 640 chir pine and sal trees of this forest had been sold by the forestry department.

The forestry department officials had earlier marked the trees to be felled, and subsequently the contractor had on several occasions gone to the forest with his labourers, but they had been unable to fell any tree as whenever people from surrounding villages saw the labourers approaching the forests with their axes they rushed out of their homes and fields to hug the trees. Since the labourers could not axe trees without injuring the people clasping them, again and again they were forced to withdraw from the forest.

Then the contractor sent an urgent message to the district officials to help him as he was legally entitled to fell these trees after they had been sold to him in an auction and properly marked by the forestry department officials. After some hesitation the administration agreed to send armed police force to assist him in felling trees. This force of about 100 men of the Provincial Armed Constabulary (PAC), some of them armed with rifles, had arrived a day before at a roadside village called Jajal about 10 kms away from Advani, and had paraded on the road in an apparent show of strength for the benefit of local villagers. Word of the arrival of the police force soon spread in the villages of this region and since early morning people started gathering in the forest to face the new situation.

Now the labour-contractor, after hurried consultations with the forestry and police officials, asked his men to pick up their axes and saws. But as soon as the labourers moved towards the forest the assembled villagers formed themselves into groups of three and four and each group surrounded the nearest marked tree. When ever some labourers advanced towards one of these trees, they immediately hugged the tree, clasping their arms firmly around its thick trunk. For more than an hour the frustrated contractor went-around the forest with his labourers, seeking to fell at least a few trees, but when ever he approached a marked tree which had been left uncovered by the tree-huggers, the women and children standing on the road below rushed to the tree to protect it.

The police-force had no answer to this unique form of tree-protection. The only way of felling trees was to drag each one of the tree-huggers away from the forest and then arrest him.

There was no possibility of a violent retaliation as these protesters had throughout remained non-violent, again and again shouting two slogans.

Hamla chahe jaise hoga,
Hath hamara nahi uthega
No Matter What the Attack on Us
Our Hands will Not Rise In Violence

and

Police Hamari Bhai Hai
Usse Nahi Larai Hai
The policemen Are our Brothers,
Our fight is not with them.

Thus the police had no fear of violence on the part of the assembled people if it decided to arrest them. But it could not possibly take the drastic action of dragging away each of the demonstrators from the forest, and then sending them to the nearest prison against a people who were exuding all the warmth and brotherhood towards the assembled officialdom, and reassuring them time and again that their only intention was to protect the trees and not to create any disturbance.

After waiting for over an hour, the officials consulted each other and decided to move away. While leaving some of the PAC men exchanged pleasantries with the assembled men and even congratulated them on their success.

As the jeeps and trucks roared off, the joyous people gathered to shout in unison their last message. "*If the axe falls on the trees we will offer our bodies first.*"

Why were these villagers so anxious to save trees from being axed ? What motivated these shy hill women wary of any contact with outsiders to flock to the forest to face the police ? Why was the protection of trees so important to these remote villagers of the Himalyas ?

Distress in Shangri-La

2 *...and when the tourist bus enters the serpentine road of the hills, the visitor's eyes are feasted with the splendour of nature in all its glory.*

—quoted from a tourist brochure

So you think that these hills are beautiful. I tell you they are remorseless, cruel—much misery and anguish lies hidden behind this beauty.

—a youth of Pilkhi village, Tehri district, in conversation with the author, 1979.

In the Punsora village near Tehri town, seven women set out of their homes to collect fuel and fodder from a distant forest. Oblivious of the early morning sun that was rising in distant horizon and making the dew drops glisten like so many pearls these women walked on in grim silence.

Instead of heading for the forest where they generally went they instead took the path leading to the nearest peak. After reaching their destination, they took a long look at the river flowing peacefully in the valley below, said their prayers, and then jumped together into the river.

Several other cases of the hill-women committing suicide when they cannot bear the back-breaking labour to which they are exposed every day of their miserable life have also occurred in the Uttar Khand region.

And the recession of forests resulting in shortages of such basic needs of their life as fuel, fodder and water is directly responsible for the increasing problems of the hill-women.

Due to the depletion of broad-leafed species of trees such as the oak which conserve rain-water and then release it gradually throughout the year in the form of springs, natural sources of water which had served the villagers for so many years now do not exist or have thinned considerably

Drinking water schemes costing lakhs of rupees have come to nought as the very sources from which water was to be taken have dried up. In several villages during summer months the women connot sleep restfully at night due to their anxiety to reach the springs early enough to collect the few drops that trickle in. As forests have receded, viliage women also have to trudge long distances, sometimes as much as 10 miles or even more, on difficult hill-terrain for getting their essential supplies of fuel and fodder. In the Salt region of Almora district the distance which has to be traversed is so great that these women have to spend their night in the open on their way back to their houses after collecting fuel and fodder.

For most other women fodder and fuel-gathering has become a full day's job, in addition to their onerous duties at home and in the fields. On the days they go out for fuel and fodder, they have to leave their home early in the morning and return in the evening. to the joyous cries of their children who have waited long hours for mother to return. (*See Appendix 1*).

However, not on all occasions is the home coming so joyous. When there is no one else in the family to look after the children while the mother is away, for the sake of their safety she has to lock them into a room or even tie them to a cot. If the small child dirties himself there is no one to wash him and he can only keep waiting till his mother returns. On one occasion a woman living in a village near Jajal in Tehri Garhwal district returned home to find her baby burnt to death in the hearth.

Travelling in these hill-regions one can see these village women panting as they climb steep slopes, their shoulders bent with the weight on their heads, their legs tottering beneath them on the long trek to the forests which is a daily drudgery for them for the greater part of the year Sometimes I have seen them precariously perched on such steep slopes that I have wondered how they could get there in the first place, how they are managing to cut grass there without slipping and how they will finally emerge out of the dangerously sloping grassland with the heavy loads on their heads. Occasionally these women slip and fall tumbling into the valley below and on such occasions it is very rarely that they survive.

It is said that about a hundred years back animal husbandry used to be the mainstay of the people of this region, but thank to the extreme shortage of fodder now some families can not even keep a single bullock and occassionally men and women can be seen ploughing the parched fields on their own. The milk yield of malnourished cows and buffalos has gone down drastically, and it is common to find skimmed milk powder being used in those village-houses which can afford it.

The shortage of fodder has been caused not only by deforestation as such, but also by the steady replacement of the broadleafed species of trees such as the oak which provide fodder by coniferrous species of trees such as the pine whose needle like leaves connot be eaten by cattle Further the acidic properties of these leaves impede the fertility of agricultural fields.

With the loss of forest-cover the surface run-off of water has rapidly ripped off the fertile top layers of soil "*Peeled off the skin of mother earth,*" said a farmer of Rampur village in the Hemvalghati region. "*At places where my plough just felt the stones hidden beneath the soil during my young days,*" said 64-year old Jagat singh Kaki of Syakri village in Pithoragarh district, "*now boulders stand upright*"

Understandably the fertility of land where it can still be cultivated, has declined greatly, with the use of chemical fertilizers offering only a temporary reprieve, that too only to the better-off cultivators. Gopal Singh of Birchula village in the Nainital district lamented, "*When I first brought this land under cultivation about twenty years back the potatoes I harves-*

ted were huge and healthy, a single potato weighing as much as 450 grams; now all that I get are these tiny, scorny looking potatoes."

Thanks to the reduced potential of traditional occupations like animal husbandry and agriculture and shortages of such essentials of life as water and firewood, there has been a heavy drain of able-bodied young men, mostly to menial jobs in cities and also in the army. It is on remittances sent by these migrants that their families here largely depend for their livelihood, resulting in the creation of a money-order economy. This has also meant that family - life in these hill-villages has been disrupted, the former having migrated to earn a livelihood, the mother engaged in back-breaking labour from dawn to dusk to cultivate fields and obtain daily necessities like fuel, fodder and water, the children getting neglected.

Recently three women of Jakh village in the Jakholi Block of Tehri Garhwal district whose husbands had migrated to Bombay several years back got together and committed suicide.

All these factors have combined to make life in hill-villages a constant struggle for sheer subsistance and clearly the most burden has fallen on the women. But even this subsistence-in fact the very survival of more and more hill villages —is threatened by the increasing fury of landslides and floods which have been causing untold destruction in recent years.

Deluge in the Himalyas

"FOR many years I had looked forward to the day when I would fulfil my life-long ambition of bathing in Ganga Mai's sacred water at Gangotri (the river's origin). Who could have thought that after reaching here I would curse myself for having come here instead of considering myself blessed. But yet, hunger and illness has driven me to this—I curse that dark hour when I set out on this wretched journey." These words of a pilgrim uttered when he reached Uttarkashi town after several days of tortuous journey across dangerous hilly terrain after having been isolated during the Bhagirathi floods of 10th August symbolise the change in the face of the Himalyas that has been taking place over the last few years from a Shangrila for tourists and life's fulfilment for pilgrims to a destructive place of landslides and floods.

Early on the morning of 6th August 1978, residents of Uttarkashi town had noticed that the Bhagirathi was receding alarmingly. It did not take them long to realize that landslides must have blocked the flow of the Bhagirathi somewhere in its upper reaches and water must be accumulating in an artificial lake which could burst forth any moment under the fury of the surging water. At about 1.30AM, near Bhangli village 50 kms, upstream of Uttarkashi, a massive 3 kms long and 1 km wide mountain slab had tumbled into a rivulet called Kanodia Gad blocking its flow. Since this rivulet later merges into the Bhagi-

rathi (Which in turn becomes the Ganga after its confluence with the Alaknanda at Dev Prayag) near a place called Dangala the silt and rubble deposited in it also travelled to the Bhagirathi and blocked the mighty river's flow near the site of the confluence. The blockade resulted in the formation of an artificial lake, abetted by more landslides as water accumulated in the four km long artificial lake in Bhagirathi behind a nature made bund nearly 100 metres high. For over 13 hours, from 2.00AM to 3.55 PM water continued to flow into this lake, then this surging water finally found for itself an outlet on the left side.

The flood caused by this sudden release of water struck Uttarkashi at about 5 PM bringing destruction all along its trail. The first target of the sacred river in this holy town, ironically enough, was a refuge of Sadhus known as Ujely where its waves shattered a rest-house and carried it along with them. Turning to the right the river then submerged a dense forest of pines located picturesquely on an island in the middle of the river, uprooting all but one of its trees. Then it entered the newly constructed power-house, where it was obstructed by a bridge and changing its flow to the left, gobbled up several paddy fields and houses in its remorseless onslaught. Ten kms ahead at Raturisera, the river again drifted towards the right and shattered the only road connecting Uttarkashi to the plains. Reaching Raturisera thirteen days later I could still see the clawed remnants of the road as though some monstrous creature had ripped it in bits and parts. For a stretch of 70 kms downstream up to the town of Tehri, the devastation continued unabated.

In the wake of the attention attracted by this tragedy, and the possibility that had the entire lake been burst suddenly the whole Gangetic valley upto distant Allahabad would have been threatened, the source of the floods, the landslide which had blocked the flow of Kanodia Gad and first created an artificial lake there, was all but forgotten and it was widely believed, in fact circulated officially, that the danger had passed with the 6th August floods. However, the lake at Konodia Gad was very much there and it could burst on 10th August even as the AIR bulletins were assuring the people here of their safety. The small township of Gangnani 45 kms upstream of Uttarkashi

was wiped out by a fresh flood and then the flood followed the same course, causing further havoc.

The agony of this tragedy struck hill-region did not begin or end with these floods, a spate of landslides all along the Tehri Gangotri road played havoc with the lives of the people living here. As huge boulders continued to rain down the hills at Sayansu village, for instance, about 20 houses here had to be evacuated.

Loss to property in the town of Uttarkashi or at the Maneri-hydro-electric project 15 kms upstream attracted wide attention, not so the destruction caused to the fields and houses of villagers living in small and isolated settlements all along this stretch of land. For several days after the floods had ceased to make news, from across the river one could still look in helplessness at those hundreds of stranded people who could only point towards their empty bellies to tell about the tragedy that had befallen them in these small, cut-off settlements

In the Vangaan region of Uttarkashi district, bordering the Himachal region, several tributaries of the Yamuna including Rupen, Supen and Pabhar, as also the seasonal rivulets which merge into them at various places, played havoc. The damage was complete and total in villages like Tikochi. Following the heavy rains on the 2nd September, landslides and floods rendered several portions inaccessible, with food-supplies available only for a few days and the link with the nearby market places snapped, according to information given by people coming from the interior region a week after this destruction. Inspite of the immense distress caused here and the direct implications of this damage in the region which is included in the catchment area of the river for the floods which reached Delhi on 4th-5th September following a destructive trail, even the news of this destruction in the interior region did not reach the outside world till a long time later and administrative effort for providing relief to the victims was conspicuous by its absence, at least in the early stage.

On the night of 20th August Dehradun district faced an unprecedented deluge in which nearly 50 villages suffered heavy damage. In a single village, Rampur, 200 houses caved in and

scores of cattle were washed away with the current of the swollen river.

Earlier on June 19, the Kosi river flowing in Almora district assumed a menacing mood. Heavy rain lashed relentlessly, eroding soil and carrying it to the already surging river, eventually flooding it.

Uprooted trees and heavy logs blocked the river-flow at several places, creating artificial bunds. When the continuous onslaught of water finally broke these bunds, the sudden inflow into surrounding villages, flooded them destroying farmland and damaging irrigation channels beyond repair.

In 1977, on the night of August 15, soldiers celebrating Independence Day in the distant Tawaghat region of Pithoragarh district were suddenly smothered under a hail of boulders brought down by an enormous landslide. The people of neighbouring villages spent the night in a state of terror as huge stones poured in, burying houses, killing people and destroying crops. As many as 44 lives were lost, 76 heads of cattle killed, 20 barracks and 16 houses burried and 150 acres of farmland spread over six villages was destroyed.

These are not isolated instances-the danger from landslides and flash floods has become increasingly frequent in the Himalyan region . Moreover the floods in the hills are quite different from the floods in the plains. In the plains generally floodwaters recede after a few days, but in the hills flash floods wash away elaborately terraced fields, the product of several generations of hard labour, at one go and this damage connot be replaced. With the spread of horticulture orchards have been planted at more and more places requiring long-terms investment. But if they are destroyed by landslides or floods before they start yielding fruits, the borrower is left saddled with long-term indebtedness. Due to climatic reason most homes here are built of better material and with higher investment than in the plains and it may take years to build another home.

As 35-year old Bhavan Singh of Simar village said after the 1978 Kosi floods, "The river has taken away all that I had."

These landslides and the subsequent flash-floods, have generally been attributed to 'cloud-bursts' and 'geological

disturbances' but even when such phenomenon are responsible for initially causing landslides, the damage done by them would not be so acute if the surrounding environment were well protected.

As Lester R-Brown has noted in his recent book on the environmental crisis, the Twenty-Ninth Day, "Increasingly natural catastrophes are brought at least in part by humans. Even when disasters are not triggered by human activities, they can be exacerbated by them"

A recent study by Kenneth Hewitt of a minor earthquake (of 5.5 magnitude on the Richter scale) in the mountains of Northwest Pakistan has shown that the earthquake damage was far greater in deforested areas. The rockfills and landslides that followed the quake did as much harm as the quake itself. Farms and villages in the steep walled tributary valleys and narrows of the Indus suffered mainly from the terrible rain of boulders following the tremors. The results were more like bomb damage."

Trees and other vegetation offer a protective cover to the soil which it badly needs for its stabilisation. They meet the first onslaughts of rain so that water reaches the soil only after its fury has been checked and it has lost the strength needed to carry the soil along with it. At the same time the roots of trees, spread far and wide beneath the ground, hold the soil and rocks together. With the destruction of forests, there is heavy erosion of soil by water and huge boulders held together by the soil get loosened. A mass of soil and rock gets destabilised and even the slightest disturbance can send it rolling down the steep mountain slopes. The damage is greater at places where the geological formations of the mountains has been weakened by the use of dynamite to clear the land for road construction and other development projects. And in the Uttarkhand region, there has been massive deforestation as well as large-scale use of dynamite for quarrying and mining and for building roads and dams.

Floods and Famines

"HIMALYAN forests are the greatest of national assets and to them we owe the richness of the country The denudation and under-development of the Himalyan slopes lead to great intensity and frequency of floods, recurrent erosion, and to coarse detritus being deposited on the fertile sub-mountain tracks. This process inflicts immeasurable loss and misery on the unsuspecting millions in the Indo-Gangetic plains and brings about a progressive and permanent impairment of soil-fertility, and a reduction in the agricultural potential of the whole land."

—Quoted in the Report of the Kumaon Forests
Fact-Finding Committee, 1960.

The Himalyas immediately impress visitors with their massiveness and grandeur. And yet this view of these giant mountains can be deceptive. Like all other mountain ranges, the Himalyas have an extremely sensitive ecology any harm done to which magnifies itself in course of time and can result in serious disruptions.

For thousands of years the West Himalyan ranges stretching from Afghanistan through Pakistan, India, Nepal and Bhutan to Burma have protected this sub-continent from the Himalayan arid cold and desicated interior of the Eurasian land mass and have been the source of the major rivers which bring life to the

sub-continent—the Indus, the Ganges and the Brahmaputra. Yet as nature has time and again shown it does not tolerate man's indiscriminate tampering with its ways beyond a limit, and what has been protcetive then turns destructive. The ecological harakari ecocide-now being perpetrated in the Himalyan hills spells disaster on a massive scale for the people of these countries.

"Histroy has repeatedly shown" writes Erik Eckholm in 'Losing Ground,' "that when ecological changes take place in the highlands, changes soon follow in the villages and the plains below. And while only 10 per cent of the human population lives in the highlands, another 40 per cent lives in the adjacent lowland areas, their future immediately bound to developments on the slopes and plateus above".

Nowhere is the significance of highland changes so closely tried up with the vast multitude of the plains below as in the hills of Uttarakhand which includes the catchment areas of India's most important river, the Ganga and its numerous tributaries. The future of millions of people living in the teeming Indo-Gongetic plains is tied up irrevocably with what happens on the hills of Uttar Khand. If these sensitive and geologically weak hills continue to be deforested and further weakened by dynamite blasts, then this will inevitably show up in heavier sedimentation of rivers, subsequent rise of their beds and flooding of the plains.

The disastrous Yamuna floods of 1978 which devastated a large part of UP. Haryana and Delhi had their origin in the heavy erosion and landslides in the Wangaan region of Uttarkashi district and the neighbouring regions of Himachal Pradesh. The Bhagirathi floods had at one stage threatened to cause havoc in the entire stretch of the Gangetic valley up to Allahabad A large portion of the terai-bhabar area of Uttar Pradesh was devastated by rivers bringing heavy loads of silt and other rubble from the hills.

Several canals have been constructed for diverting the water of Ganga and its tributaries for irrigation and several more are under construction or are being planned. The Upper and Lower Ganga canals take away a large portion of the

Ganga water near Hardwar and Aligarh respectively for quenching the thirst of parched agricultural fields. No less than 20 lift pump canals are planned on the Ganga in its stretch between Allahabad and Ghazipur.

While engineers go on merrily constructing new canals, we can forget only at our peril the dangers of silting and clogging of these canals if the deforestations and dynamite blasting work in the Himalyas is not checked. In 1970 heavy erosion and landslides in the catchment areas of the Alaknanda in the Himalyas had led to the saturation of the Upper Ganga canal with silt at Hardwar for a stretch of 10 kilometers, denying irrigation to a large part of Western U.P. and necessitating enormously expensive desilting operations. Similar wastage and destruction on even more massive scale could be caused again in this and other canal networks if this preliminary warning is ignored.

Heavy siltation also poses several question marks on the feasibility of the several multi-purpose storage projects being undertaken on these rivers. After independence while a large number of such projects were undertaken on major Indian rivers, the Himalyan reaches of these rivers remained by and large virgin because of the innumerable problems involved in constructing dams and storage reservoirs in the complex geolgical conditions of the Himalyas. Despite the advances made subsequently by the technology of dam engineering and experience gained by our engineers, there is little evidence that most of these problems have been overcome now. For instance a recent review of work done on hydel projects in the Yamuna valley said, "Before the work of Yamuna stage Ii was taken up nobody could imagine such difficult situations out of a simple layout Now after the experience of tunneling in Yamuna Stage II, Bahigiri Project in Himachal Pradesh and Pandoh-Baggi Tunnel in Beas-Sutlej Link Project it is clear that the strategy should be that adopted in war where discretion is supposed to be the better part of valour."

Quite apart from the geological complexities involved in creating them, the fate of these multi-purpose reservoirs seem to be sealed by the massive landslides and extremely highsoil erosion in the upper reaches which would create an enormous

sedimentation problem and silt up the reservoirs in no time. How long the benefits of a strange reservoir will last depends on its sedimentation rates and if this rate is very high, then within the matter of a few years the reservoir will be filled up by silt. It has been observed by the Irrigation Commission that the sedimentation rates of many of our reservoirs have been seriously underestimated. In some case the actual sedimentation rate has turned out to be as many as four times higher than what was estimated. In the case of the major reservoirs whose catchments lie in the western Himalyas the Bhakra reservoir and the Ram Ganga reservoir, the sedimentation rates have turned out to be much higher than what was expected. New work has already started on the construction of a massive 831.7 feet (253.5 meters) high rockfill dam near the confluence of the Bhagirathi river with its tributary the Bhilangana about 2 kms downstream of Tehri town (Two more giant river-valley projects are planned at Utyasu and kotli Bhel sites in the Garhwal region).

A singularly unique phenomena of the Bhagirathi river is that it receives sediment in the shape of sand right from its source, the Gomukh glacier. The incidence of erosion arising both from fragile geological formations as well as from relentless deforestation in this region is among the highest in the world. This has been verified by sattelite photographs.

A prominent geologist Dr. S.P. Nautiyal, President of the Dehra Dun based Wadia Institute of Himalyan Geology has said in a recent note on the Tehri dam, "The Bhagirathi and Bhilanagana rivers drain the southern slopes of the central snow-covered Himalyas, where erosion is extraordinarily high and the river brings silt for 8 months in the year. The hill sides of the catchment area have been denuded of vegetation leading to high erosion. The gradient of the river is steep and it is capable of bringing many times greater silt and bed load them the flat gradient Sutlej above Bhakra. Thus the silt content both in suspension and bed loads needs a careful study over a 20 year period before such a high reservoir is proposed. The proposed life of the Tehri reservoir may turn to be only 30-40 years instead of the 100 years claimed officially."

The various storage and other hydel projects which have been undertaken on our Himalyan rivers are threatened in various ways as long as the ecological and geological damage in upstream reaches is not checked and aggressive flash floods continue to visit the rivers frequently. The 1978 floods in the Ganga, the Yamuna and their tributaries causes heavy damage to many of these projects. The damage to the Maneri Bhali project has been so severe that its construction work been pushed back by several years.

The floods which passed Tehri on August 6 brought with them enormous loads of uprooted trees which would have shattered the strongest structures. These would have easily choked the spillway of the reservoir and pushed down the dam structure causing havoc in the Gangetic plains. Had the controversial Tehri dam been completed by this time, a major part of its live storage capacity would certainly have silted up.

In addition to posing the threat of floods and siltating silting canals and reservoirs, the deforestation on the Himalyas also poses the problems of water-shortage during the dry season. As the forests on the ecologically crucial catchment areas of rivers are razed, the water of these rivers cannot be replenished by perennial streams whose source lies in the groundwater conserved by trees and other vegetative cover. This results in the drying up of natural springs of water and considerable thining up of the river flow during the dry season.

The deteriorating ecology of this region may lead to a serious long-terms water famine in other ways. Several mountaineering expeditions and pilgrims going up these hills as well as local people have in recent years reported rapid receding of several glaciers. In the absence of adequate glaciological studies, it may not be possible to make even roughly accurate statements about the extent to which this has been happening in the case of most glaciers. But the trend has been reported on too wide a scale to be dismissed entirely.

For instance, the evidence, even if only cursory evidence, of pilgrims and local people and the relatively more expert opinion of mountaineers, pointing out that the 26 x 3.5 km Gomukh glacier from which the Ganga originates is receding too numerous to be wholly ignored. Moreover these reports

have been confirmed by expert scientific opinion, Dr. C.P. Bohra, Director of the Glaciology Division of the Geological Survey of India has said that in the 41 years from 1935 to 1976 the Gangotri, glacier has been reduced by 775 meters or at a rate of about 18 meters per year. During the next two years it recedes by as much as 150 meters. As snow-cover is receding the sandy wastes near Gomukh are expanding, and right at the source of the Ganga its water is so saturated with sand that the pilgrims taking a bath in it find their hair covered with sand-particles.

The well-known mountaineer and ecologist Hari Dang, commenting on this aspect of Himalyan ecology has admitted that all over the world glaciers are receding and sea-levels are rising, we are now living through the fourth cycle of glaciation in recession but at the same time he has expressed serious concern at the extent of this recession—within living memory glaciers have reduced to have reduced to half their length and half their depth.

For this, according to Dang, the responsibility lies on certain man-made factors. In particular Dang has drawn attention to the destruction of the dense forests and moist grasslands of the terai. The depletion of this moist transpiration which stimulated heavy monsoon rainfall for bringing more and more land under the plough has led to dust formation. The plantation of Eucalyptus trees on a massive scale has further worsened the matters as this trees sucks out moisture from the soil for its rapid growth and monsoon winds are absorbed rather then precipitated by it. By the times these winds reach the mountains they are devoid of much of their moisture and consequently much warmer and dessicated than before. Laden with the dust of the terai plains these dessicated wlnds have been flowing up the Himalayan valleys over the past 25 years and reducing the ice-sheets, thus starving the Himalyan glaciers of sustenance and renewal of snow-covers. The result is that the actual volume of water, from one season to another, descending down the valleys is clearly showing signs of reduction, "A water-famine is in the offering, and can overtake us within this country, or soon thereafter," warns Hari Dang.

"We have a three decade long history of gross neglect and mismanagement," laments ecologist Dhum Kalapesi, referring to the Government's failure to portect the steadly deteriorating Himalyan ecology. She further states that most other nations which have glaciar fed rivers and lake systems have special governmental agencies to maintain constant vigilance to detect the first signs of deterioration, to discover the causes and to launch timesly action." But these extremely urgent needs remain unattended in India, and this is an open invitation to recurrent disasters-floods, droughts and famines-affecting local population in the Himalyas and millions more in the plains below.

The Unsettled Refugees

"THOSE hills were my home yesterday and these plains are my home today. Then I owned half-an-acre of land and now I am landless— a 'pahari' in conversation with the author at Lalpani Plantation, near Rishikesh, December, 1978

Every year the hill-stations so lovingly established by the British at Mussoorie and Nainital continue to attract more and more tourists. But now another traffic has started—in reverse gear. And these travellers are no fun-seeking tourists or even job-hunting migrants; they are those wretched of the hills who have made their final decision to leave their ancestral homes and villages, and seek their fortune in the plains below.

When the mother earth, raped incessantly by erosion, refuses to yield any grain, when the forest nearby is razed necessitating a ten-mile trek to fetch fuel and fodder and when the nearest water spring has dried some of the families in the village start wondering how long they will survive in their ancestral hill-village. And the last lingering hope of retaining a foothold on this losing ground is shattered when the boulders brought by a massive landslide came tumbling down on their houses and fields, destroying them.

The combined result of the above factors, stemming basically from ecological ruin, has been the displacement of thousands of families from their houses. Faced with increasingly deteriorating living conditions, crippling shortages of

857 COMMUNITY HEALTH CEL
47/1, (First Floor, St Marks Ro
Bangalore - 560 001.

daily necessities, back-breaking hard life and occasional ruin of whole villages by 'natural' disasters, more and more desperate families in the hills have been taking the hard decision of abandoning their traditional homes, selling the limited property owned by them and setting forth towards an uncertain future in the plains. Their distress at abandoning the home of their forefathers is soothed only by the consolation that nothing could be worse than the life they had to lead there.

Most of the burden of the influx has been borne by the plains lying at the feet of the Himalayas known as the 'terai' Fortunately, much of this fertile land was in wilderness till a few years ago, and hence available for cultivation, with the result that it could absorb the increasing tide of migrants from the hills.

But the fertility of the terai notwithstanding, a grim and uncertain future awaits this rising tide of migrants. Most of them try to scrape together their savings, including the meagre money they have obtained from selling whatever little property they owned in the hills. Usually this sale takes place at throw-away prices at the time of departure to purchase small plots of agricultural land. Some of them are able to survive as small peasants, but many others, when they incur indebtedness, lose this land to the moneylender and join the ranks of the landless.

The oppressive power-structure in several parts of the terai has resulted in making things all the more difficult for these migrants. The Nainital teari in UP, for instance, is dominated by a handful of big landowners cum-racketeers, who have acquired huge chunks of land by fraudulent means. Sometimes by force and on other occasions by thinly disguised racketeering through false ownership papers, these landlords have been adding more and more land to their already over-stretched fiefs and cornering a large share of the development funds at the expense of the smaller man.

A promising solution to the problems of these refugees has been found by settling them on plantations of the forestry department. The forestry department land is leased out to them for a particular time-period, during which they can cultivate it, while at the same time guarding and looking after the plantation trees. Such settlements, broadly following the

'taungya' settlement pattern first started at Thailand, certainly open up new possibilities for the problem ridden migrants from hills. But here, too, vested interests have hindered the flow of benefits to these people Inquiries made at such plantations in Dehradun districts revealed that a few rich and resourceful people, in collusion with forestry-department officials, arrange for the entire land to be leased in their or their relatives' name, although they have no intention to cultivate it themselves. This land, in turn, is leased to the helpless migrants at a high rent Now since the land is not leased in their names, these people cannot get other facilities such as development loans or even ration-cards. Nor has anything been done to provide them basic amenities like education and health-care.

What is more, these migrants have realized too late that the ecological ruin of their homelands, which drove them to the plains, can also bring havoc to their new surroundings. The bed-level of several rivers in the terai bringing dust-laden water from the hills has been steadily rising.

Not only does this guarantee wider flood from even normal volumes of water in the monsoon; it also causes the river courses to meander about, often destroying prime farmland as they go. Ironically water-level has been receding a several places, and land-productivity falling, as huge plantations of the eucalyptus (a tree which sucks moisture rapidly for its growth) have been raised on a large part of the terai for industrial use. Moreover, as a result of the heavy population pressure on it and the primitive technology pursued by most farmers, there are signs that the fertility of this rich land is already being depleted.

Hence, migration has certainly not brought an end to the problems of these uprooted hill people. Their uncertain future, made wrose by ruthless exploitation and unscrupulous cheating, has kept them as rootless and as uncertain of their future as they were when they first ventured into this imaginary land of riches.

The Forests of Uttarkhand

6 BEHIND much of the agony of the hill-people, as also the exposure of the plains people down below to increased floods is the undisputed fact of the steady deterioration and recession of the forest-cover on these ecologically-crucial slopes. The National Forestry Policy, 1952 pleaded for a forest-cover of over 60 per cent of the total area of these hills, but just now, even according to the official figures, existing forest-cover is much below this desired norm. This inadequacy of the forest-cover is brought out tellingly in the following official figures of the forestry department of Uttar Pradesh.

	District	*No. of Water-sheds*	*No. of Sub-watersheds*	*Forest Area %*
1	Pithoragarh	2	11	39.7
2	Almora	5	9	47.8
3	Nainital	3	8	68.3
4	Chamoli	2	9	33.6
5	Pauri Garhwal	5	12	53.7
6	Uttarkashi	1	6	43.6
7	Tehri Garhwal	3	15	54.7
8	Dehradun	1	3	50.6

	Name of watershed	*Forest Area* %
1	Tons	76.6
2	Yamuna (Upper)	56.7
3.	Yamuna (Lower)	29.7
4.	Ganga (A) Southern Portion	50.5
5.	Ganga (B) Bhabar Portion	61.5
6	Ganga (C) East and West Nayar	36.5
7.	Ganga (D) Bhagirathi	34.9
8.	Ganga (E) Alaknanda	32.1
9.	Ramganga	41.0
10	Kosi	69.0
11.	Sarda	45.7

As for the reliability of these statistics, it can only be stated that one has to accept these estimates as the only one existing. If anything, being official statistics they are likely to err on the side of exaggerating the existing forest-cover.

However, even these figures tell only a part of the story because most of the existing forests are badly damaged and depleted. When ecologists speak of the protective role of forests, they mean dense natural forests with the crowns of trees almost touching one another. If the forest-cover is thinned by 40 to 50 per cent, its power to protect soil and water may well be lost. Observation made in the course of scientifically conducted experiments have confirmed that at the time of heavy rain water can pass through such thinned forests at the same speed as through unforested areas, specially when the green cover of pastures beyond the forests has been destroyed by overgrazing and by cattle tracks. In Uttarkhand most of the existing forests are in a considerably thinned and depleted state, and hence no position to fulfil the soil and water conservation tasks expected of them.

The necessity of fostering a dense growth of trees used to be recognised officially in the not-too-distant past. For instance, the working plan for East Almora Division, 1938-39 to 1952-53, stated clearly, "It is very unwise to make a heavy opening on the canopy. There should almost certainly not be

more than one crown's width between adjoining old trees. At least in actual practice such principles of convention forestry are seldom adhered to now. In fact many of the so-called forests of today are nothing but a collection of trees, well-seperated for each other.

Moreover the broad-leafed species of trees such as the oak have receded the most rapidly and today the hills of Uttarkhand are dominated by coniferous species of trees, specially the ehirpine. The soil and water conservation properties of these are very limited. The canopy provided by the needle leaves of the pine can hardly compare with the broad leaves of the oak in protesti earth from the fury of heavy rain. Further the dense growth of broad-leafed species encourages an equally dense under-growth of small plants, bushes and various other organisms which result in the creation of rich humus, increasing greatly the water-absorbing capacity of soil. One has only to compare the soil samples picked up from beneath a growth of pine and oak trees to realize how different they are and how much more porous the soil under the oaks is.

The National Forestry Policy, 1952, had specifically mentioned that the forests in these ecologically crucial areas should be managed as protection forests. To quote, "Protection forests denote forests found, or required, on hill-slopes, river banks, sea shores, or other erodible localities. In such sites the need for forest cover is dictated by purely protective physical considerations, such as prevention of erosion, conservation of moisture and control of rushing torrents and floods. The role of such forests in saving the soil from being washed away and in the prevention of floods and the maintenance of stream flows cannot be overemphasized". The policy statement then went on to recommend "an immediate and speedy programme for the reconditioning of the mountainous regions river valleys and coastal lands by establishing protective forests over large areas, and preserving the existing ones. More specifically, the National Policy stated that the primary objective of management of such forest should be utilized in full their protective influence on the soil, the water, regime, the physical and climatie factors of the locality, and the

interests to be thus protected should for outweigh those which may be necessary to restrict."

Despite this precept laid down so clearly in the National Policy that the management of these ecologically crucial forests should be based on protection rather than on commercial exploitation, it is the order of the axe which has prevailed in the actual management of these forests.

The Science of Tree-Slaughter

DO not axe these oaks and pines. Nurture them, protect them. From these trees the streams get their water and the fields their greenery. Look, how the flower smiles in the forest.

—from a Garhwali song composed by folk-poet Ghan Shyam Sailani

The forestry department has always maintained that the blame for the destruction of the Himalyan forests should be placed squarely on the local people. The official viewpoint does not deny that the Himalyan forests have been badly damaged and that this is responsible for the sport of landslides and floods, but the cause for this is held to be overlapping and overgrazing by the villagers in the civil-soyam forests. On the other hand, it is held that the reserved forests are managed very scientifically by the department and little or no damage has been caused there.

Is the destruction done to civil-soyam forests really so great as is made out in the official reports and statements ? In three districts, Nainital, Uttarkashi and Tehri Garhwal according to official figures the civil-soyam forests constitute only a very small portion of the total forest-area of these districts. So how could the damage done to these forests spread over a relatively small area have resulted in overall denudation of these hills Clearly the blame lies elsewhere.

But in other districts the civil-soyam forests do constitute a sizeable sequent of the total forests and it has to be agreed that civil-soyam forests are in a depleted state, but are the villagers so much to blame for it? When the classification of forests was made in British times, the forests near the villages were designated civil soyam and most of villagers' forests rights restricted to them. Now such forests being nearer to the villages are likely to have been the first ones to bear the burden of the villagers' needs, and so were likely to be already to be in a depleted state when they were first designated civil-soyam.

Before the advent of the British, the state had no rights over forests, and it was local village community which, for all practical purposes, owned the forsets surrounding the village. The enormous commercial potential of these forests, however, attracted the attention of the British. Subsequently, in order to exploit forests for industrial uses, the rights of the local people over forests, were rapidly curtailed.

Not only were forests, which had hitherto supplied only local needs, depleted on a massive scale for exporting timber and other forests-products, but the character of forests also underwent a drastic change as the natural forests were replaced by man-made forests planted with commercially profitable species of trees. This benefited the industrialists but did not supply fodder to support animal husbandry which was then the main source of livelihood in these parts.

Thus on the one hand more pressure was exerted on a smaller area of forests now designated civil and on the other, as agriculture became the people's main source of livelihood (instead of animal husbandry) more and more forest land was cleared for extending cultivation.

Simultaneously, there occurred a basic change in the attitude of the local people towards forests. So far in an animal husbandry dominated economy. forests being the source of fodder, were looked upon as essential for the well-being of the village economy and the importance of their maintenance was recognised by the villagers. Now in an agricultural economy the villagers struggling at subsistence level, started thinking in terms of clearing more forests to extend cultivation. Ecological consciousness, which was once a way of life, was now

sought to be imposed from above in the form of conservation laws which became more of a symbol of oppression. The villager whose entire life and culture had in the past been woven around a harmonious relationship with forests was now reported in official reports and files as their worst enemy.

At the same time as blaming the villagers for the indiscriminate destruction of forests, the forestry departent has always sworne by its conservation objectives. According to official figures, commercial felling operations are carried out only on 15 per cent of the forests so that these are hardly likely to make an impact on the overall denudation of forests but while arriving at this figure the forestry department also includes the perenially snow cover lands, alpine pastures and some other areas which should not have been included for giving a proper estimate of the percentage area in which commercial felling operations are carried out. In fact these felling operations are carried out over a fairly large area and have made a substantial contribution to the denudation of these hills. Resin-extraction operations are carried out on large area of pine forests.

The forestry department has always maintained that these fellings are always carried out keeping in view the principles of scientific forestry management reaping the maximum timber harvest while at the same time not sacrificing the needs of conservation. How scientific is this 'scientific' managements of forests by the department ?

In 1965 only pine trees of the growth of 135 years were considered mature enough to be felled. Few years later this age was reduced to 120 years and then to 100 years. Since the scientific principles underlying the felling of trees remained the same, why was the age of trees curtailed downwards so rapidly ?

The working plans of the forestry department may be prepared on the basis of scientific guideiines, but are these followed in actual practice? If they were then there would be no need for the working plans to look back in distress at the overfelling carried above the targets laid down in the last working plan. According to the latest working plan Uttar-

kashi Forest Division (Page 96) during 15 years from 1961-62 to 1976-77 the pine was depleted 20 per cent more than what was laid down in the working plan.

According to offical figures on fellings in Tehri circle during 1976-77, which were included in a note submitted to the Central Government by the UP Forestry Department in 1977 it was admitted that in excess felling had been carried out in four out of the five divisions of this circle. To quote from this note, "In Chakrata Division against the prescribed annual yield of 16000 volume unit in P.B.I. the annual removal by way of thinninges in the regenerated areas ranged from 20,000 to 53,000 volume units. Similarly in Yamuna Division also, against the prescribed yield of 64,000 volume units, in quartier blue areas, the removal from these areas was of the order of about one lakh volume units.....In Tehri Division there are excess fellings to the tune of 62,000 cu.m in Chir Working Circle.....In Tons Division there has been considerable excess felling in Chir areas. The precise excess is still being worked out.

It is a well-known fact that under the contract system of felling trees the petty forestry officials have always been at the back and call of the resourceful contractor and he has been able to obtain a free hand in carrying out felling of trees much in excess of what was allotted to him in the auctions. Full or even partial details of such unauthorised cutting seldom come to light, but some years back an alert village-Pradhan named Kripal Singh had painstakingly collected the details of unauthorised cutting in a forest located in Rateri block, Purola range of Yamuna Division, and proved that 2445 extra trees had been cut in an auction for 4000 trees. Not only did Kripal Singh not get any co-operation of the forestry department officials in taking this exposure, but he was even threatened and intimidated in various ways to prevent him from making the exposure. In another case of this kind a dedicated social worker Surendra Dutt Bhatt of Uttarkashi district was falsely implicated on charges of possessing opium.

The Matli village near Uttarkashi district was badly mauled by landslides and floods in 1971 and subsequently when the Tiwari an official Commitee had strongly recommended that no

further felling should be permitted at this site. Yet felling was started here in the auctioned lots, and even when orders were issued to stop this felling 126 trees were cut illegally. When this came to light then efforts were made to provide legal protectlon to the contractor by further auctioning already felled trees in Narendranagar and further putting the blame of the felling on the local villages. Further despite the strict instruction not to carry out rolling operations on these already badly damaged slopes, many logs were rolled on them causing heavy damage to the soil.

In 1976, 173 unauthorised hornbeam trees were cut in the Tons Forest Division of Uttarkashi district. Despite the fact that some alert local people immediately drew the attention of the high officials of the Forestry Departmenl to this-illegal felling at an early date, the task of felling dragged on for a few months. Although this amounted and to economic crime involving over Rs. 2.5 lakh worth of trees the enquiry that was conducted into this episode was a farce and instead of taking strict action against the offenders some of the informants who had brought this corruption to light were themselves arrested.

Such cases are too frequent to be mentioned here in all the details and it is only very rarely that they come to light, and even more rarely is any strict action taken against the offenders. Such illegal activities often involve a collusion between the forestry department officials and the contractors, the latter generally being influential local persons or political representatives. In at least one case of illegal cutting it was found that a senior department official himself had financial interests in the contract. This contractor-official collusion which is responsible for the most widespread and revolting from a corruption in this hilly region exists not only at the lower layers, but generally has the covert or overt support of the higher-level (Lucknow and Delhi based) officials and politicians, including the representatives in state and Central legislatures. These contractors provide the best resource of finance for the candidates of various political parties at the time of election.

While contractors dominate the economic and political life of the hills, even petty foresty officials have amassed enough wealth to construct bungalows in cities like Dehradun. In

1974 a list of 22 such officials who were involved in 'rags-to-rich' fairy tales were passed on to the state government by some local people. The Chief Minister had then ordered an enquiry into these allegations and at the same time insisted that if these are found false then legal action should be taken against the informers. Since then no such action has been taken against the informers, and according to available indications, the enquiry is still continuing.

Another party involved in this corruption is that of the large-scale industrialists whose collusion with the higher-level forestry department officials results in the sale of valueable trees to them at dirt-cheap rates. The 20-year agreement of the forest department with the Star Paper Mills has resulted in the sale of thousands of pine trees at very cheap rates to this mill. Although only crooked trees are supposed to be sold to this mill under the agreement trees of normal growth have also been provided to this mill on a large-scale. Resin has also to be provided to a large-scale industrial units like the Rosin and Turpentine Factory at Bareilly on very favourable terms, and similarly in the case of other forest produce.

In Himachal Pradesh hornbeam tree used in the manufacture of some implements for the textile industry was sold as fuel wood at the rate of Rs. 5/- per tree instead of the normal rate of around Rs. 5000 per tree. In another scandal due to pressure by a Minister the contract for selling Khair trees for the extraction of Catechu (Katha) had been given to a private firm at an extremely favoured rate. In fact recently allegations have appeared that the fires engulfing some governmental buildings in Simla may have been deliberately caused to destroy records relating to corruption in the forestry department.

What has caused even more damage to these forests than the supply of cheap forest produce to industrialists is the deliberate management of the forests for meeting the raw material needs of industry to the neglect of local needs of obtaining fodder and good fuel. The most obvious instance of this is the way two commercially useful trees—the eucalyptus and the pine—have been promoted at the expense of trees giving good fodder and fuel.

Several ecologists have raised serious doubts about the rationality of saturating the entire region from Siliguri Westward to Pathankot and the Kangra Shivaliks with the quick-growing Eucalyptus trees. Since it is a quick-growing species and its timber and oil are required for many industrial uses, its plantation on a large-scale has certainly been a commercially profitable undertaking but the local people can obtain little fodder and fuel wood from it. Further it sucks away moisture and thereby depletes the fertility of agricultural fields and birds seldom build nests or hop around to welcome spring in plantations of this thin tree with small branches and few leaves. Moreover, as mentioned already, ecologists here also draw attention to the contribution made by these plantations to the dessication of winds and the subsequent recession of the Himalyan glaciers.

Although it has often been claimed that the plantation of Eucalyptus and other commercial trees has been undertaken only as a part of the afforestation programme and not to replace the existing natural forests many instances can be cited in which natural forests were cut to clean the land for these plantations. In the terai-bhabar area of Uttar Pradesh and Himachal Pradesh this happened on a large scale. In the Nahan Forest Division alone 6682 Sal trees were axed to plant Eucalyptus. A forest officer who had been employed in the Ramnagar region of UP later related how under pressure from above he had been forced to cut Sheesham and Sal forests on a large-scale to make way for Eucalyptus.

In Uttar Khand the forestry department has been following a devious policy of forestry-management for destroying broad-leafed species of trees, most of them more useful for providing fodder to the local people than for providing raw material to big industry and promote the coniferous varieties of trees such as the pine and the deodar, which are less beneficial and in some ways even harmful for the local people but provide valueable raw material for industry.

In several oak forests deodar saplings have been planted and then the oak trees have been girdled so that they dry up and die an early and unnatural death. After some years the oak trees vanished while the deodar forest flourished. In pine

forests the management is such that a dense growth of trees which is conducive to the sprouting of oaks is discouraged by selective cuttings in the name of providing light for the proper growth of pine trees. In this and other ways massive mono-culture of coniferous trees has been fostered in the Uttar Khand region. While carrying out such management the forestry department also continues to propagate that only coniferous trees can now grow on the depleted, barren slopes of these hills.

Recently Mira Behn, a disciple of Mahatma Gandhi now settled in England, who had spent several years in Uttar Khand has questioned some of the well-propagated myths of the forestry-departments. Her analysis is worth quoting in detail.

Myth 1 : The Forest Department is taking care to protect the oak whenever it exists.

Mira Behn's Reply : During the 5-years that I lived in the Garhwal forests at 5 to 7000 feet altitude, I did not see the slightest sign of this protection, except in one small area where the department was anxious to protect a spring to provide water to some government buildings.

Myth 2 : Nowhere has chirpine been planted to replace the oak.

Reply : I have seen many areas of pure chirpine in the banj (oak) zone. If they were not planted by the Forest Department, they were certainly cared for and thinned out by it. Planting is hardly necessary as the chirpine seeds itself and grows like a weed

Myth 3 : Banj-oak requires deep and fertile soil to grow and it is slow growing. Most of the eouthern slopes of the Himalyas are bare without a trace of soil left. Even if cost-considerations are ignored, lack of soil-depth and moisture will not allow the banj to prosper.

Reply : Firstly it is an exaggerating to say that most of these slopes are bare without a trace of soil left. Secondly the deep, powerful roots of thc Banj penetrate between the rocks. The Banj can grow on steep mountain ranges. It is the Banj that enriches the soil and fosters cool springs. Where it has been obliterated by Chir, it will, of course, be a long, difficult job to resuscitate it owing to the improverishment of the soil caused by the hard, resinons pine needles of the chir, but ways will have to be devised if the floods are to be controlled.

Myth 4 : The official policy is that the oak should be maintained wherever it exists.

Reply : Had this policy been carried out during 25 years since I last wandered in the Garhwal forests, there would by now be definite devclopment of banj growth.

The replacement of natural forests by man-made forests of commercially profitable tree has occurred not only in Uttar Khand but in most other forest areas of the country, leading to widespread resentment among the tribals and other people living near forests. In Chota Nagpur this has even given birth to a people's movement for hacking the hated sagwan wan trees. These man-made forests are not only incapable of working in the same way as the natural forests for the maintenance of ecological balance, but In somc instanees may even da positive harm. Many hazards implicit in creating such forests on an even larger scale are not known and understood widely but in this context it is partinent to draw attention to the widespread destruction of trees caused by windstorms in the forests of Almora and elsewhere. One factor responsible for this was excessive resin-tapping, but another factor may have been the instability inherent in such monstrous coniferrous monocultures.

The following finding of the famous 'Man of Tree', Richard, St. Barbe Baker, documented in his book My Life, My Trees (Page 117) regarding a massive destruction of pine tress in a

forest of England will explain this point better than anything else.

"We inspected the tree-roots to read if possible the cause of this disaster. We found that most of the trees felled in the storms were approximately forty years of age when root competition had become severe. It is a fact that the hair roots of pines are charged with an acid sheath; nature has provided this to help dissolve rocks and enable the root to penetrate. One often sees how the tiny root of a pine, by the sheer force of expansion, has succeeded in splitting a rock, emerging a foot or so below the point of entry. Imagine myriads of small roots competing with each other at the same level for growing space. When this happens an acid pan is formed at the level of the greatest root competition. For the health of pines there must be a mixture of broad-leaved trees so that leaf-fall can provide food for the roots of the conifers"

Serious irregularities have also been observed in the tapping of resin, a thick liquid like substance which is used in manufacturing several products ranging from turpentine oil to cosmetics and which can be obtained by making cuts on the pine trees so that it starts oozing out slowly. Although the tapping of a little resin from a healthy pine tree may not damage it, excess tapping may weaken the tree so much that it falls to ground when exposed to even slight windstorms. Further it may be exposed to several pests and diseases after excessive loss of this liquid. For this reason the tapping of resin is regulated, or at least is supposed to be regulated, officially by carefully laid down guidelines which specify the length, breath, depth and the number of cuts that may be made in a pine tree.

The Krishna Murari Tiwari Committee which enquired into the excess tapping of resin from pine trees in the forests of Uttar Khand clearly said in its report. "In the Chakrata, Yamuna and Tons Forest Divisions, generally itregularities were detected in cent percent of the cuts made in the pines for tapping resin. Either in terms of the numbering of trees or in terms of the width, length and depth of the cuts made, rules were not followed in any of these contexts. Whichever areas we visited the concerned forest officials were not able to point out even a

single cut made according to the established rules Some irregularities were of such a nature that we could not even have thought of these. For example leaving the distance of only one centimetre between two cuts. The bigges irregularity related to the depth and width of the cuts. Instead of the 2.5 cm deep cuts whieh should be made according to rule we found cuts ranging from 3 cm deep to 10 cm deep. Similarly with respect to the width of the cuts, instead of the 10 cm cuts which should be made according to rules we found cuts extending upto 20 cm..... After examining such irregularities we have reached the conclusion that when such glaring neglect of rules is found to exist in the region extending from one to two kms around the roads where the contractor and the labourers have to fear the periodic inspection by forestry officials, then the state of the pine forests located on distant and inaccessible regions is bound to be even worse."

After pointing out that if longer than regulated cuts are made then the pine trees are weakened and perish easily, the Tiwari Committee goes on to note the conditions in the Rama Block of Yamuna Forest Division.

"In this block we saw several trees on which cuts had been made on all sides. Not even a distance of one or two centimeters had been left between two cuts. About 1700 pine trees were found uprooted this year in a 200 hectare area. Last year 1200 trees were uprooted here mainly because of the excessive cuts made in them After an extensive inspection on foot in compartment No. 3 of Rama Block I eould see that resin tapping has been carried out recklessly here. Several trees have thinned considerably due to cuts made on all sides. Many trees have already fallen, many others are drying up and dying a slow death..... It would not be an exaggeration to call this reckless tapping the rape of forests".

Who was responsible for this raps of forests and why and how it was allowed to continue for so long ? According to some rules framed in 1964 regarding the economic punishment te be imposed on the contractors under whom irregular cuts were made, some impossible terms were laid down. On the one hand a fine of upto Rs. 5 per irregular channel was decided, and on the other hand a maximum limit on such

fines was fixed at 45 paise per channel. But in actual practice the fines extracted were even more revolting In 1971 in Yamuna Forest Division only a fine of 3 paise was imposed pet irregular channel, in Tons division a fine of only 14 paise was imposed per channel and in Chakrata a fine of only 21 paise was imposed. The rate at which this fine was extracted remained very low even during the subsequent years but in 1974 this was raised to one rupee per channel. Even this rate was so low that the contractor was left with a substantial profit margin from illegal tapping even after paying this fine. Under such condltions it suited the contractor to go on merrily paying the fine and indulge in more and more illegal tapping of resin. Under the terms of contract with the forest departments its senior officials were empowered to remove the contractor if he persisted in illegal tapping, but these terms were conveniently ignored. Forestry department officials time and again noted the excessive damage caused by this reckless exploitation—in fact one of them went to the extent of officially noting that these forests would be destroyed in 10-15 years if such exploitation is allowed to continue further and yet no significant action was taken till the Tiwari Committee submitted its report, Why ?

In the areas where the pine trees have suffered the worst damage resin extraction used to be carried out on the basis of the 'Himachal system' under which the forestry department leased out a particular number of trees to the contractor for the supply of a certain quantity of resin. The contractor in turn leased out the trees to the labourers who were asked to provide him a certain quantity of resin per tree worked by them. The contractor naturally tried to extract the maximum resin as all the remaining resin after the forestry department requiremets were met belonged to him, and the labourer in turn tried to extract the maximum resin by much bigger cuts so that he too received a good share. However both the contractors and the labourers were restrained from indulging in illegal tapping by the regulations of forestry department, but this problem could easily be got over by suitably greasing the palms of the forestry officials. There is no other explanation for the obstinate refusal of the forestry department

officials to take an action against contractors even though the widespread illegal damage done to the pines was so widely recognized. In addition it is alleged that since many of these contractors enjoyed political patronage it was difficult to take action against them.

Excessive resin tapping harms pine trees in several ways. Trees weakened in this way can fall to the ground when exposed even to very mild windstorms. The resin collected in the tin-pots inserted in the cuts made on the pines can result in total burning of the tree even in times of a very mild outbreak of fire in the forests. When the tapping of resin initially started these trees were tapped only for 5 years and then provided a 10-year rest but they have been recklessly destroyed under modern day scientific foreslry.

Every year during the summer season the tourists start flocking to hill-stations in buses and taxies. An entirely different earavan accompanying them is that of the Gujars, namodic herdsmen who spend their winters in the heights of the U.P. Himalyas. These Gujars do not remain confined to the foothills, but march on with their buffaloes and cows to heights of over 13000 feet where lush grasslands, or bugyals, serve as rich sources of fodder for their cattle. The ecology of the temperate forests and grasslands of this region is very senisitive and the growth of vegetation exceedingly slow. Due to the relentless onslaughts of the Gujars and their cattle, these sensitive areas have been badly mauled in recent years. On such sensitive areas where the imprint of a foot can remain for a period of five years due lo the slow growth of vegetation, the cattle cause grave damage not only by grazing but also by their trampling.

Even on their way to these bugyals, the Gujars have been blamed for indiseriminate lopping of trees in the forests through which they pass. The Krishna Murari Tiwari Committee appointed by the UP government to enquire into some aspects of the destruction of Himaiyan forests quoted official documents to show how fodder trees are wholly stripped of their leaves and branches by the Gujars, in gross violation of the regulation governing the lopping of trees. Once the Gujars have been allowed into a forest, they are its masters as there

is hardly anyone to check their activities in this remote interior area. Occasionally lower-level forestry officials have been asked to accompany groups of these herdsmen on their journey but such regulation has been rarely effective.

Another long-standing complaint against the Gujars has been that they have been bringing much larger number of cattle herds along with them to graze in the highlands than what is permissible on the basis of the permits granted to them. The grazing charges levied from the Gujars per head of cattle brought by them are extremely low and have not been raised for a long time that it pays them to brin as much cattle with them as they can to graze in these lush grasslands. Complaints against this excess of cattle have been too numerous to be dismissed lightly, and the Tiwari Committee also found such complaints to be true.

In fact on the basis of the evidence regarding excess cattle brought by the Gujars and the overgrazing permitted to them, the Committee approvingly quoted official documents which passed very severe strictures on the forestry department for such callous attitude towards the destruction to forests and grasslands by the Gujars. To quote, "It appears from the shocking damage done by Gujars that the Forestry Department and its plans have not yet started functioning. What has been mentioned in the Working Plans seems to be there just for the sake of it, and not for taking any action. If still the indiscriminate grazing by these cattle is not checked, very soon there will be neither any forests nor any buffaloes left in this area. The forestry department officials have to be squarely blamed for allowing this indiscriminate destruction of forests".

In fact it is widely alleged that the forestry-department officials, from bottom to top onwards, are bribed by the Gujars so that they are allowed to bring in an excess number of cattle and also allowed a free passage in the fosests through which they pass. These bribes, moreover, are often paid in kind—in the form of pure ghee prepared by the Gujars from their milk yield. It it said that huge cannisters of this ghee regularly reach the kitchens of forestry officials. In fact the Gujars carrying their valuable cannisters of ghee sometimes distinguish between what is simply a 'cannister' and a 'sarkari cannister',

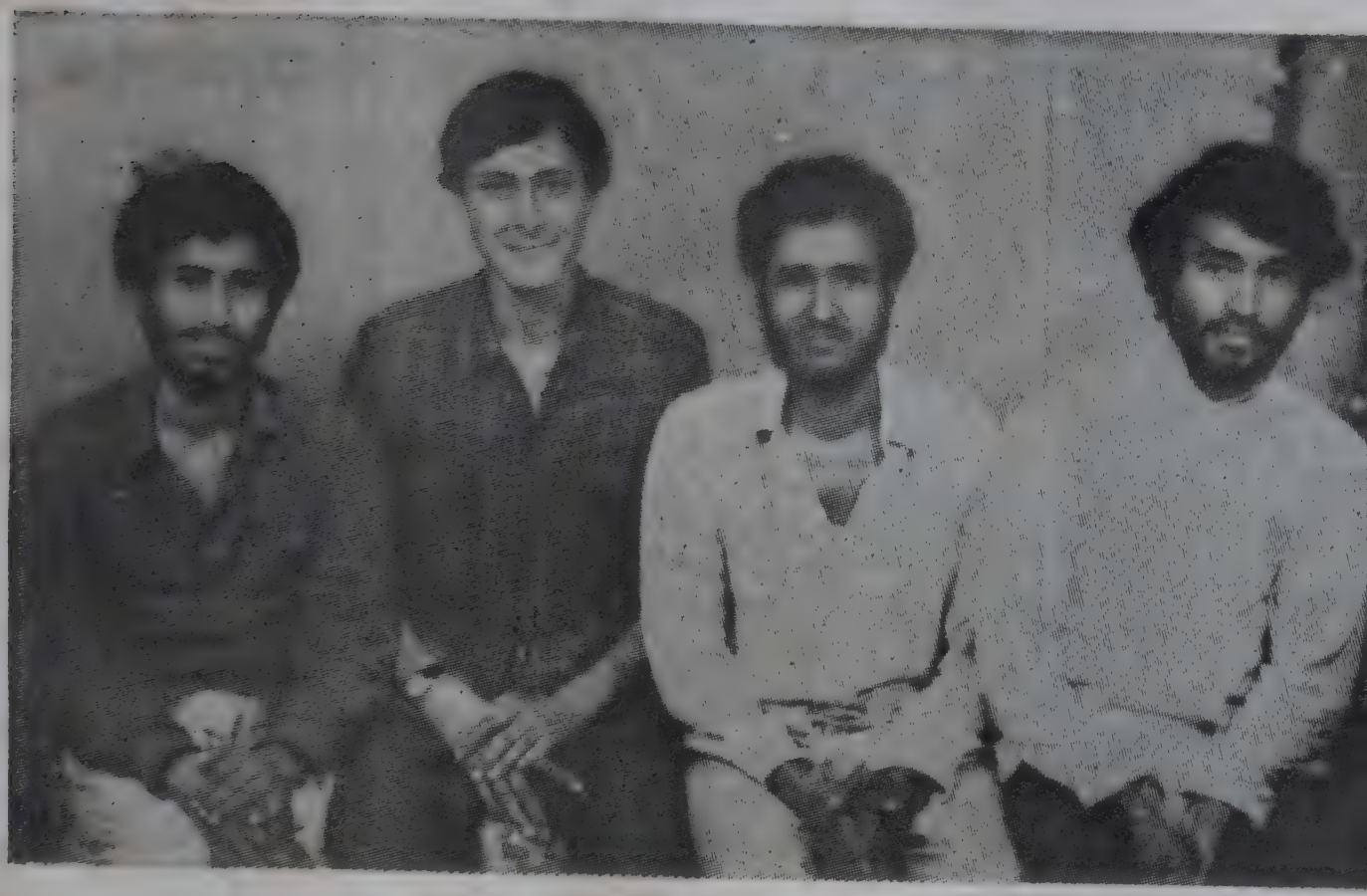
the later havlng been earmarked for some official. The cattle of the Gujars, apart from creating shortage of fodder for local people, also occasionally damage the standing crops in these fields. Timid hill-villagers do not generally venture to get into a scuffle with the Gujars moving around in large groups, but occasionally when they have objected to the indiscriminate grazing by the cattle, their protest has not been heard and occasionally there have even been cases of the local villagers being beaten up by groups of these nomadice herdsmen.

In several hill-villages the resentment again the Gujar is very strong. Longer-terms plans to permanently settle the Gnjars in the terai-bhabar region. althongh these have been much talked about, have not made much of an impact on the wandering life of the Gujars. Even where land has been provided for their permanent settlement in the plains and some grazing facilities also provided rearby, it has been found that the temptation for invading the rich grasslands of the highlands is too great for them to be avoided especially when much larger facilities than what they are entitled to can easily be bought by greasing a few palms.

Althongh it is very difficult to gauge the earning capacity of these wandering herdsmen, the widespread opinion is that they are economically quite well-off. Yet their life can hardly be called a satisfactory one, as in the present state they will always remain away from such basic amenities as education and medicare. With dwindling grasslands and demands for restriction of their grazing activities their children will inevitably face an uncertain future.

Therefore from the point of view of the hill-people as well as from the point of view of the Gujars it is highly desirable that concerted efforts should be made for the settlement of Gujars who other. wise will continue to accelerate the ecological deterioration of this area. An interesting experiment which proved successful in Soviet Russia for resettling nomadics herdsmen involved the provision of education and medicare for these wandering people, and once they got used to it, urge them to settle permanently at a place if they wanted to avail of these facilities.

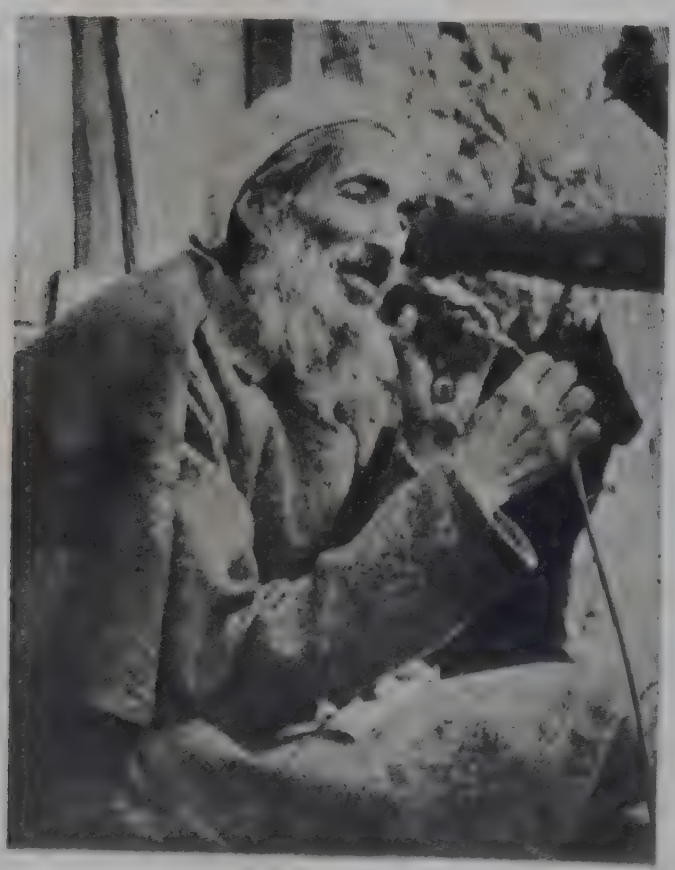
The Agents of Change



Four Participants of the Askot—Arakot March; From Left to Right, Kunwar Prasun, Shekhar Pathak, Pratap Shikhar, Shamsher Singh Bisht

★

Sunder Lal Bahuguna during his fast at Badiyar Gad, January, 1979



The People

Children of Hemvalghati Dig out Iron Bass from Pine Trees.

★

Each family Contributes a loaf of Bread to Chipko Activists in a Village of Badiyargad.

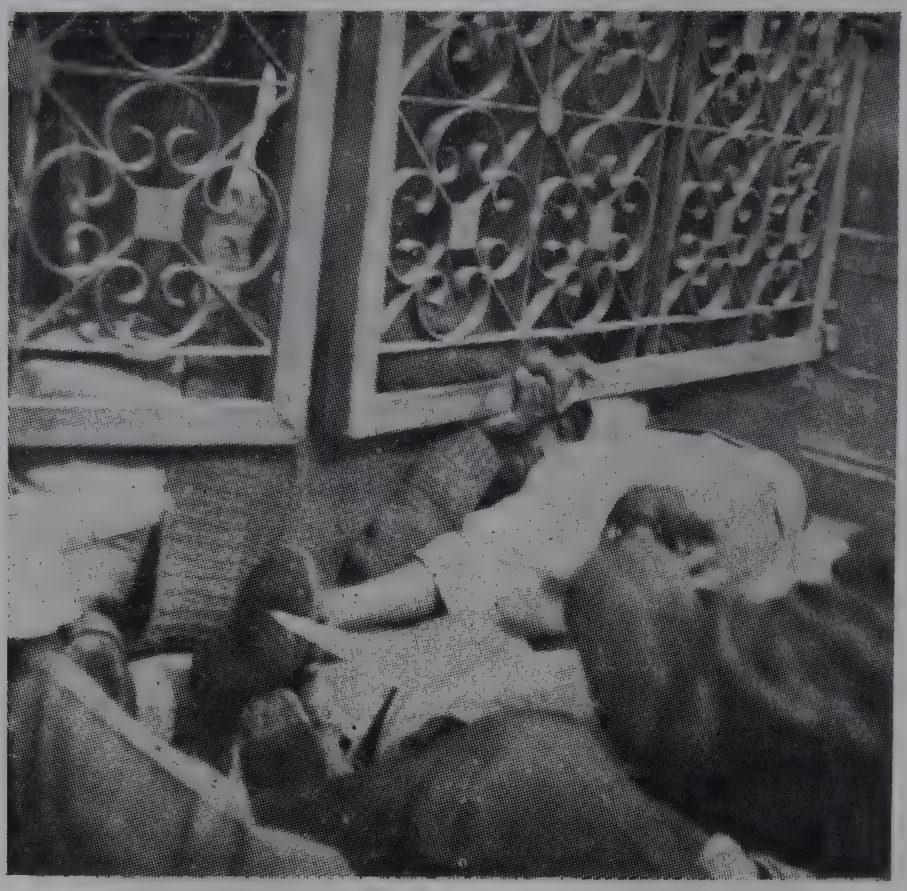
At the Beat of the Drum

Folk-Poet Ghan Shyam Sailani is Beating his Drum to Attract Villagers.

★

A Procession of Chipko Activists Heading for the forest of Loital.

Action

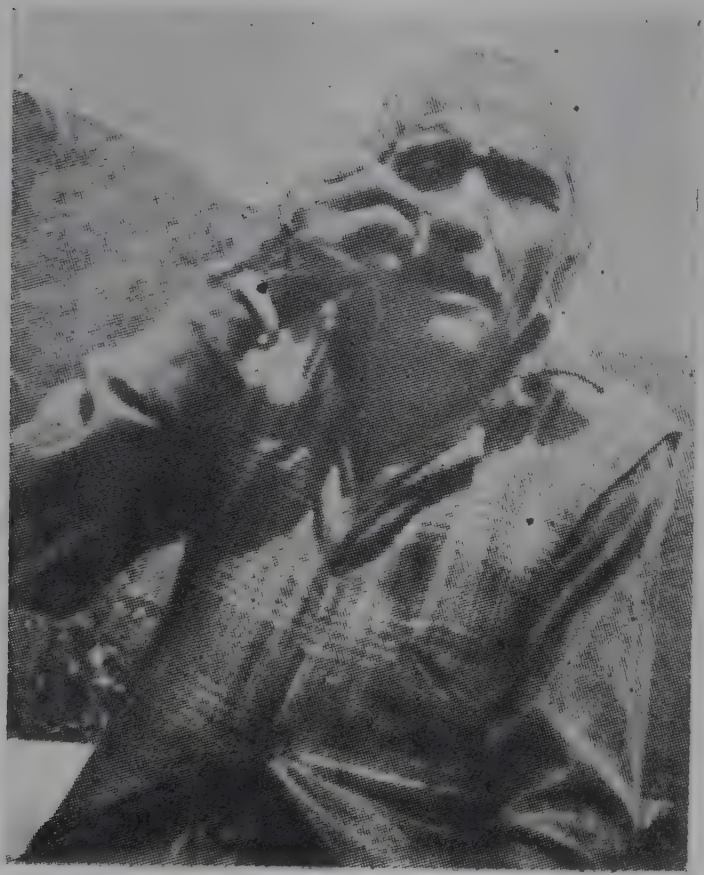


Chipko activists blocking the Gate of Auction Hall during a Forest-Auction in Narendra Nagar

★

One of the numerous expeditions which have taken the message of Forests to Remote Areas

Victims of Ecological Ruin



Chimar Singh of Khela Village A Victim of the Tawa Ghat Landslide

★

Forest—Labourers at Work

Ecological Ruin

Forests of Uttar Khand have been Recklessly Destroyed in Recent Years

★

This Sign Board near a Landslide Site Cautions Travellers to be careful

Part II

An adventure seeker must be able to withstand isolation, neglect and ridicule, to overcome oppression, tyranny and exploitation, to withstand hunger, thirst and fatigue. At times, he must be prepared for dynamic dangerous living whether it be on the cornics of a mountain or a battle for the defence of his convictions.

—*Betrand Russel*

. . . . . *And a Ray of Hope*

The Beginning

30TH MAY 1930. A huge crowd had gathered in the fields of Tilari, in the Rawai region of the present day Uttarkhand district. The people had been agitating against the restriction of their forestry rights for several days, and now they had gathered to plan their future strategy on receiving the news of the arrival of armed forces sent by the feudal administration of Tehri kindgdom. Unknown to them a batallion of this armed force was already headed for the field of Tilari.

As the soldiers approached the field of Tilari, one of them who belonged to the region of Rawai rushed forward and tried to warn the gathering of the impending attack. But his bravery was in vain. In no time the surging armed force had surrounded the field on three sides, and started firing. 17 people fell dead on the spot, a much larger number were injured while several others saved their lives by jumping into the Yamuna river and swimming across it.

The agitation at Rawai was merely one phase of the long chain of protest movements which sprouted from time to time in Uttarkhand over forestry rights. Ever since the commercial exploitation of forests was speeded up and the forestry rights of the people curtailed, people have been rising in revolt to assert that their traditional ties with their surrounding forests, which are so crucial to their welfare and in fact their very survival, should not be snapped.

Around the beginning of the present century the pressure of the peoples demands regarding their forestry rights had become so acute that in 1907 Major General Wheeler was constrained to himself head a mass meeting at Almora to oppose the policy of the curtailment of the peoples' forestry rights. In order to remove discontent and callous opposition, Sir John Hewett declared at the durbar of Bareilly in 1906, "the government has no desire to make money out of these forests and intends to spend for the benefit of the people of Kumaon the amounts by which the receipts exceed the expenses".

Such occasional assurances notwithstanding the commercial exploitation of forests was steadily accelerated, reaching its peak during World War I and continued unabated during the post-independence period. In recent years an organized movement offering resistance to the ever-increasing onslaughts of commercial interests on the forests of Uttar Khand has been waging a grim battle on these hills. In keeping with the fact that now Uttarkhand is no longer composed of feudal fiefs and British-ruled districts but is an integral part of the Sovereign Republic of India, the movement has emphasized not only the protection of local interests but also the larger national importance of preserving the ecologically crucial forests.

In 1960, a group of socially conscious men in Gopeshwar town of Chamoli district, banded together to form a labour cooperative called the Dashauli Gram Swarajaya Sangh (DGSS). Their aim was to give jobs to local men near their homes by setting up forest-based small-scale industries. In these efforts they were led by Chandi Prasad Bhatt, a Sarvodaya worker who was previously employed as a booking clerk in a transport company.

Though it organised a few industrial workshops the DGSS was unable to compete with rich contractors at auctions since their large bids included considerable illegal cutting. The big industries, being steady customers were also able to buy resin at cheapter rates

Matters came to a head in 1972 when the forest department refused to supply the DGSS with their annual quota of ash trees. Instead the trees were auctioned to Simon Company, a sports good manufacturer in distant Allahabad. Faced

with the possibility of having to close down their carpentry workshop, DGSS decided to fight back.

The Simon Company's contractor had to be prevented from felling any trees. But how ? While discussing their plan of action, an elderly villager got up. "When a leopard attacks a child," he said. "the mother takes his onslaughts on her own body". The others were silent for a moment. "Yes, that is it", finally one of them shouted, We'll hug the trees when Simon's agents come to axe them". Thus was born the Chipko ("hug" in Hindi) movement.

DGSS workers fanned out to neighbouring villages to spread their message and seek the help of the local people. They found the villagers sympathetic but afraid to help. "What can do we when the Sarkar (Government) has ordered the trees to be cut ?" they asked. Despite these misgi vings, however, the DGSS was able to make some headway. When the company's contractor and his men arrived at the Mandal forest about a kilometer from Gopeshwar, they found a large group of villagers already there. "We will not allow you to cut the trees", the villagers declared.

The contractor, who'd never faced such a situation before, was puzzled. Deciding that it would be more prudent to seek further orders, he withdrew.

Later the forestry department tried to mollify the DGSS by offering them the ash trees back and alloting Simon Company trees from another forest further away at Rampur Phata. But by now the DGSS aims had widened and they were not content to protect the trees at one place at the expense of another. Rejecting the forestry department's offer, they sent their workers to mobilize the villagers at Rampur Phata. And again the Simon Company had to back out, but at a later stage it resorted to a subterfuge.

An announcement was made that a film would be screened at Guptkashi, about 12 km from Rampur, on a particular night. Many of the villagers had never seen a film before and the temptation was irresistable. But the film was not shown and by the time the villagers returned home the next morning they found that some trees had been felled in their absence. Determined to be more vigilant, the angry villagers kept a

continuous watch in the forest and thwarted all further attempts to cut trees. Soon, the Company's contract to cut the trees lapsed.

These successes spurred the Chipko activists to more intensive campaigning among villagers. Sometimes they would even play the devil's advocate and while arguing that tree-felling was a good thing, try to get the villagers to contradict them.

They found the women folk particularly keen, since they were the main victims of deforestation, having to trudge long distances up and down steep hillsides every day for fuel and fodder.

The next confrontation took place in the Reni forest, near Indo-Tibet border, part of the badly denuded catchment area of the Alaknanda and its tributaries where no less than 2,000 trees had been auctioned by the Forestry department. Ecological ruin of the region had been the major factor behind the disastrous Alaknanda floods of 1970. During the year a massive landslide had resulted in the formation of an aritifical lake in Pital Ganga, a tributary of Alaknanda. When this lake burst, tremendous floods were unleashed in the main river—Alaknanda—resulting in massive destruction in Belakutchi region. Several buses plying on these pilgrim routes were washed away, several bridges shattered and several hundred miles downstream the Upper Ganga canal was saturated with silt, denying irrigation to parched fields. Around the same time another massive landslide on the banks of the Birahi river, another tributary of the Alaknanda, had caused the filling up of a vast lake known as Gauna Tal.

The workers of Daushali Gram Swarajya Sangh had extensively toured this region with relief-supplies and seen with their own eyes how deforestation in the catchment areas had contributed to the fury of landslides and floods. Knowing all this would they remain silent at the further deforestation in this region?

"No", decided the functionaries of the incipient movement.

Contacts were established with the villagers living around the distant Reni forest located near the Indo-Tibet border. At

this stage some activists of the local unit of the Communist Party of India having good influence in this area proved very helpful. Chandi Prasad Bhatt with local block-level representative Govind Singh Rawat (belonging to CPI) toured these villages. The villagers did not have to be told what would happen if more trees were cut—they had seen it all with their own eyes less than four years back—only to be prepared for a peaceful but determined struggle. The women attending these village-level meetings used to laugh at the word 'Chipko' Little did they realise that.....

On 26th March, 1974 all menfolk of Reni village had been called to Chamoli town for paying them some long overdue compensation. Suddenly a girl spotted some labourers marching towards the forest through a deserted route. Gaura Devi, a child-widow in her fifties and accepted by village-women as their leader, was informed. Soon she had assembled 27 women and together they rushed after the labourers.

"Brother", Gaura Devi first addressed the labourers, "this forest is our maternal home. From this we satisfy so many of our needs. Do not axe it. If you do so, landslides will ruin our homes and fields. The labourers were from Himachal Pradesh, their families also lived in similar conditions in the hills. They understood the agony of these women. They agreed to return. Then the contractor and some officials, though hurling curses, also had to follow. That night the women of Reni mounted guard over all possible routes leading to the forest.

Next day the menfolk of Reni returned. People from surrounding villages had also gathered. There was no chance of the contractor and his labourers again venturing into the forest. The endangered trees of Reni had been saved. Soon after the state government appointed an official committee headed by a botanist from Delhi, Dr. Virendra Kumar, to inquire into the validity of the demands of the Chipko movement This committee recommended a moratorium on the commercial exploitation of Reni and other forests of Alaknanda catchment for a decade. This recommendation was accepted by the State Government and subsequently a moratarium was imposed.

The Growth

9

A new movement had been born and new concerted efforts had to be made to ensure that it did not fizzle out after the success achieved at Rampur Phata and Reni. The problem before the Chipko leaders was to take the message of the new movement to distant and far-flung villages in the interior areas. This battle had to be fought by illiterate villagers in distant forests, and it would not do to publish pamphlets or organize meetings in the towns and cities.

Communication can be extremely difficult in these distant villages, many of them untouched by motor-roads. How could the Chipko activists achieve this crucial task of bridging the communication gap. The only way open to them was to travel on foot to the distant villages and then tell the people there about the new movement.

Even as the incipient movement was groping for its identity n the hills of Chanoli, Sunderlal Bahuguna, a prominent Sarvodaya leader from Uttarkhand had already embarked on a 120-day Journey in the villages of these hills. On 23rd October, 1973, several young men accompanied him on small stretches of this hazardous journey in the course of which they told the people about the importance of saving forests and also learnt from them about their difficulties and problems.

While undertaking this journey Bahuguna also inspired students from both the Kumaon and Garhwal regions to join

hands together and undertake further travels to distant villages. To his surprise the youth came up with a proposal which was even more ambitious than what he had conceived. They planned to travel from one end of Uttarkhand to another—from Askot village on the borders of Nepal in the east to Arakot on the borders of Himachal Paradesh in the west—a distance of about 700 kms. The historic march began on 25th May, 1974 (this day has a special significance in the hills as it is the birthday of Uttarkhand's most prominent freedom-fighter Sri Dev Suman) when Chipko activists discarded all their money and other belongings except the most essential clothing and set out on a journey which turned out to be as useful as it was difficult.

At several places in the course of this hazardous journey these adventurous marchers came across situations when the distance between life and death was very thin Among the more active participants in this march were Kunwar Prasun, Pratap Shikhar, Shekhar Pathak, Shamsher Singh Bisht, Vijay Jardhari and Bhuvan 'Monsoon'. In all 43 youths participated in this march and in addition Sunder Lal Bahuguna accompanied the marchers for a long stretch upto Gopeshwar.

When they reached a new village these brave marchers took out a hand-mike from the ruck-sack containing their meagre belongings and started shouting slogans and singing songs stressing the protective role of forests. The villagers who gathered around these strange visitors were requested to attend an evening meeting and bring one small loaf of bread each for the marchers. At the evening gathering the marchers listened to the woes of the people and also told them about the new movement and its message. Next day early in the morning they started for their new destination with a letter from the village headman to serve as their introduction in the next village.

Starting on 25th May and reaching Arakot on 8th July, the Chipko activists finished their historic march in 44 days This, however, was not the end of these 'padyatras' and several other adventurous and educational marches were organized along similar lines Prabhat Upreti, a young lecturer of Garhwal University, took several students along with him from Srinagar (Garhwal) to Simla. Later they also walked from Srinagar to

COMMUNITY HEALTH CELL
47/1, (First Floor) St. Marks Road,
Bangalore - 560 001.

Pithoragarh. In 1975 the women activists also came ahead to undertake a march from Uttarkashi to Pithoragarh and then Kasauni. In 1978 marchers walked from Uttarkashi to Narendra Nagar to offer protest against forest auctions.

Chipko activists have encouraged students to organize educational marches to villages during their vacations, and these 'padyatras' have since become the most important instrument of conducting mass education in far-flung distant villages. Ghanshyam Sailani, a folk-poet from Uttarkashi, who writes, composes and sings his own songs, made a notable contribution to several of these padyatras as people collected on hearing his lively songs which emphasized the protective role of forests and called upon the people to save them. In the wake of disasters such as the Tawaghat landslide and the Uttarkashi floods many Chipko activists visit the affected areas in the interior which often remain inaccessible to the officials so that their true condition can be known and subsequent measures taken to alleviate distress.

Apart from helping them to spread their message, these padyatras have also become the richest source of education for Chipko activists themselves and helped them to understand the life and people of their region as nothing else would have done. "It is in the course of these distant travels that my attitudes changed and I was led from emphasising the demand for setting up local industry to predominantly ecological considerations—managing forests primarily for the soil and water conservation provided by them rather than for their timber and resin", says Sunder Lal Bahuguna, who himself traversed 4200 kms. in the years 1973-75 in the course of such padyatras in these hills.

For direct protests against commercial exploitation of forests the Chipko activists resorted to the strategy of offering protest right at the auction-site where the forests are auctioned to the maldaars by the forestry department. At the auction-sites also Ghanshyam Sailani was nearly always present to sing his inspirng songs which immediately attracted people. Even as early as September 1974 a handful of Chipko activists had registered their protest at an auction-site. A few other youth entered the auction-hall, took over the

mike and announced the cancellation of the auction. At least for the time being, the officials had to relent before this unexpected action followed by celebrations at a fair being held in this town.

In Uttarkashi Sunderlal Bahuguna went on a fast to express his distress at the auction being carried out there but the activists of the Communist Party of India in Uttarkashi district went ahead with their own plans to gherao the forestry department officials gathered at auction-site, and subsequently some of them were arrested.

Violence also erupted at an auction in Nainital, where the demonstrators were lathi-charged and even fired upon, and in the melee that ensued the Nainital club building was set on fire. At another protest demonstration at Narendra Nagar in 1977, the processionists while remaining wholly peaceful, entered the auction-hall and finally 'captured' it. The officials and the contractors fled as soon as the demonstrators entered the hall. The demonstrators, including village workers insisted that they would leave the acution-site only ofter the auction was cancelled. Subsequently they were arrested and remained imprisoned in Tehri jail for nearly a fortnight.

It has been observed that the protest-demonstrations show a frequent tendency of turning violent, even when the activists are determined to remain peaceful, and their arrest at auction-sites may result in pre-empting the effort for saving trees. The proper place for a grassroot movement lies in the villages and the forests around them, and some Chipko activists at least have felt that these protests at auction-sites should be very restrained affairs, confined to recording their protests against the auction of trees and informing the contractors that they (the Chipko movement functioners) will oppose the felling of trees.

In August 1974 the Sarvodaya workers of Uttarkhand gathered at Garur in Almora district and demanded a ban on green fellings in catchment areas and on excess resin tapping which had ruined pine forests. They also demanded an end to the contractor system of forest exploitation and fixation of minimum wages for forest labourers.

Subsequently the activists of the Chipko movement made efforts to approach the forests labourers working in terrible conditions at exploitative wages, learn about their problems and help them to obtain a better deal. The efforts of the Chipko activists led to the enaction of wage legislation and other measures for their welfare which even though tardily implemented helped to improve their lot.

Concerted attempts to end the exploitative and much hated contractor system were also made which culminated in the formation of the Forest Corporation by the state government for undertaking felling operations directly instead of auctioning them to maldaars. However, the Forest Corporation undertook work only at a few places, while the maldaars continued to flourish at most places. In addition the Corporation also continued to work through local labour-contractors which meant that the labourers continued to be exploited as before. Some efforts were made to organize labour-cooperatives to replace the labour-contractor, but these were not very successful.

Another demand made to protect local interests was for auctioning forests in smaller lots so that the local contractors of smaller means could also bid for them. This did help the upper echelon of the local population but it also proved dangerous for the Chipko movement in the longer run as it also created stronger vested interests among the local population who benefited from the commercial exploitation of forests.

The demands for obtaining more raw-materials for local small-scale industries on better terms also continued to be made and a few small industries prospered in the Uttarkhand region at a much faster pace than before. But these could never make a sizeable dent in reducing local unemployment, or reduce the outflow of able-bodied man from the hills as migrants to the plains. The employment potential of such local industry is very limited and this has led some Chipko activists to stop pressing for its further spread.

The Chipko activists time and again drew the attention to the large-scale unauthorised felling of trees in auctioned areas and similar excess in the tapping of resin. As a result of the vigilance exercised by Chipko activities several enquiries were

launched and action taken against some officials who were found guilty of carrying out excessive felling. This led to an overall reduction in excess felling and tapping of resin by contractors as now there was someone to exercise control over the hitherto ruthless exploitation of forest wealth.

During their extensive padyatras the Chipko activists saw several cases of grossly illegal exploitation of forests which they brought to the notice of the authorities as well the general public. Several glaring malpractices in the exploitation of forest-wealth came to light for the first time. This role of the Chipko activists as grassroot vigilance officers has been of immense significance.

In June 1979 some Sarvodya workers in Uttarkhand gathered at the Dharam Garh residence in Pithoragarh district of the venerable 79 year old disciple of Mahatma Gandhi, Sarla Behn. Two prominent scientists, Dr. D.D. Pant, Vice-Chancellor of Kumaon University and Dr. J.B. Singh, Head of the Department of Botany of this University also attended this garhering It was at this meeting that the demand for ending the commercial exploitation of green trees for a period of ten years was stressed the most. Around this time some Chipko activists, specially Sunderlal Bahuguna, were leaning more towards the ecological aspects of the movement and drifting away from such past demands as more supply of raw material for local industry and organisation of labour-cooperatives for carrying out felling operations.

This change in attitude manifested itself in a concerted effort to save the pine trees. There is no love lost between the villager and the pine trees growing near his village as the acidic leaves of this tree impede the fertility of his land and moreover this tree does not at all meet his most important need for fodder as its needle-like leaves cannot be eaten by cattle. Even its soil and conservation properties are limited, but since today this tree covers vast ranges of lower and middle Himalyas devoid of other vegetation, it is still very important to save this tree as it grows rapidly even on depleted lands and hence it is the last frontier on the steadily deteriorating ecology of the Himalyas.

Though its local uses are limited-even the fuelwood it provides is not ideal as it burns up very fast-its commercial uses are extensive. It has been found extremely useful for the resin it yields. In addition the timber as well as the pulp of the tree is useful for industrial purposes.

In early 1977 an appeal was issued by some prominent citizens of the Uttarkhand region to save the pine trees. At the same time the people of the Hemvalghati region were mobilized by Chipko activists to protest against excessive resin tapping by the contractors. It was a supreme achievement of the Chipko activists that they could create mass consciousness among the people regarding the ecological need to save this tree regardless of the fact that economically it is not at all useful to them and in fact harms them in some ways.

To start with, processions of people were taken to forests shouting slogans pledging their determination to save these trees. During their marches into the forest, the processionists also pasted mud plasters on the wounds of the pine trees, symbolising their determination to protect them.

After a while when entreaties to forest officials to check the reckless exploitation of the pines brought no response and the excessive tapping of resin continued unabated people resorted to the direct action programme of plucking out the iron bars inserted into the pines to 'bleed' them (yield resin). They formed themselves into small groups of 8 or 10, then marched into the forests and pulled out the bars with their hands, or with pliers on other makeshift tools, all the while shouting slogans. and singing songs. Village women going to fetch fuel or or fodder often pulled out a few bars on their way to forests This action finally brought forestry officials to inspect the affected forest-area, and the response of one of them was that the Chipko activists were only doing what the department officials should have done a long time back Finally, the contract for tapping resin from these forests was cancelled.

Meanwhile about 640 trees in the Advani forest and about 273 trees in the Salet forest of the Hemvalghati region had been auctioned. These included pine trees as well as trees of the broad-leafed species. Both forests fall in the catchment areas of the Hemval river. The Chipko activists already working

among the people decided to mobilize them for protecting these trees as well.

When the villagers declared their intention of hugging the trees in order to prevent them from being cut a contractor in Advani forest warned a group of women "Better advise your menfolk not to hug the trees when my labourers go to cut them, or else their bodies will be cut along with the trees". Instead of being cowed down by this threat, these brave women responded by themselves marching into the forests to tie sacred threads on the threatened trees, symbolising the spiritual relationship between man and tree which recurs again and again in the folk-songs and literature of this region.

The people of Hemvalghati then assembled in a meeting held in the bitter cold and sharp winds of December to issue a 'Declaration of Rights.' This declaration emphasized that their demand for the protection of trees was equivalent to their demand for the basic right of living as these forests were the source of their livelihood.

The usually shy hill-women did not hesitate in mounting the public platform and declaring that they did not understand the economics of cutting the forest—how much revenue it yielded to the government and how much profit to the contractors and industrialists—they only knew that several of them lost their lives every year while trudging long distances on difficult hill-terrain for fetching fuel, fodder and water which were no longer available near their homes due to the destruction of forests and that their fields and homes were being destroyed by soil erosion and the consequent landslides.

In Salet forest the contractor smuggled in labourers brought all the way from Kashmir but as soon as the local people came to know of this they rushed to the forest and saved the trees from being cut. Later the people were able to frustrate several similar efforts. The hide and seek game between the contractors and the labourers as the one hand and the Chipko activities on the other hand continued for several days but the contractors were unable to cut more than a few trees, despite the arrival of police force in Advani forest to help them. Finally these auctions too were cancelled.

The Flowering

10 THE spate of 'natural' disasters which struck Uttarkhand in 1978—the Bhagirathi flash-floods, the damage done by the Kosi floods and a spate of landslides and floods at several other places—helped in mobilising public opinion against further felling of green trees on these hills. Several appeals were made by prominent people that more auctions should not take place in 1978, and the Forest Department should also stop its green felling operation. Despite these appeals when several forests were auctioned at Narendra Nagar under police guard, the Chipko activists were present there to record their silent protest.

According to the Forestry Department's plans for felling trees, the most heavy damage was to be done in Loital forest, near the Ranichauri region of Tehri Garhwal district, where clear felling of 9693 trees, including about 3000 oak trees and most other trees of broad-leafed species, was planned. Loital forest, situated in the catchment area of Hemval river, one of the tributaries of the Ganga, was one of the few remaining forests of broad-leafed species of trees, and the people of several surroundings villages depended on it for fuel and fodder. Their needs were to be sacrificed and nearly ten thousand trees falled for setting up an agricultural research centre of the G.B. Pant University of Agriculture and Technology situated in the Nainital terai.

The local people and Chipko activists recognized the importance of setting up an agricultural research centre, but disputed the selection of a site which would involve the slaughter of ten thousand trees. Further the local farmers offered to make available as much agricultural land as the University wanted from their own land as long as the forests were not cut.

Soon after the auctions a people's committee for saving Loital forest was formed under their leadership of the Chipko activists Yogesh Bahuguna and Ramraj Badoni, and it started mobilising people from the surrounding villages for offering resistance to the axing of trees, if and when it took place A march to the Loital forest was organised. The people sang folk songs stressing the protective role of forest as they passed through the hill-villages. On another occasion about 200 women of Savli village, which was in the forefront of this resistance movement, went to the Ranichauri forest to tie sacred threads around the trees to symbolise their determination to save them.

Along with making preparations for a prolonged peaceful struggle, however, some Chipko leaders also approached senior forestry officials and political leaders to highlight the folly involved in clear-cutting 10,000 trees, mostly of broad-leafed species, on sensitive catchment area slopes. They also impressed on higher authorities the people's determination to save the forests at any cost. Finally, their voice was heard and the auction of the Ranichauri forest was cancelled.

The next battle which the Chipko activists fought was waged in the forest of Amarsar, near Kangar village of Tehri Garhwal district where 742 chir pine trees were to be felled by the Forest Corporation. On December 1978 when two Chipko activists, Dhum Singh Negi and Pratap Shikhar, reached this forest along with three local high school students, the group of nearly two dozen labourers working here had already felled ten trees. When they started hugging the trees, however, the contractor called away his labourers. On 3rd December the people of surrounding villages came to the forest beating drums and shouting slogans, pledging their determination to save the forest. Still the labourers, although they were local people,

did not agree to stop the felling, but when the Chipko activists arrange some finance (from the flood-relief funds collected earlier) for them to undertake afforestation and bunding work around the village (Kangar) which had been badly affected by landslides, then at once they gave up their opposition and said that they recognized the importance of the work being done by the Chipko activists but it was only their acute poverty which had forced them to accept the contractor's offer. At a later stage these labourers themselves became active participants in the bid to save trees.

Assuming that the felling in this forest had been stopped, Chipko activists moved away to another scene of action in the Malgaddi forest of Badiyar Gad where 2365 trees were to be felled by the Forest Corporation but meanwhile the contractor had smuggled in labourers from another village and started the felling work. When Pratap Shikhar, the only Chipko activist remaining in the nearby Silyara village came to know about this, he immediately went to the forest along with three students and saved more trees from being cut by hugging them. On his way back from the forest Shikhar met the contractor and some forestry officials who threatened him with dire consequences if he persisted in these activities. He was even informed that goons had been summoned all the way from Bombay to handle people like him.

Finding himself alone Shikhar decided to spend the next day in informing surrounding villagers about the new onslaught on forests and mobilizing them, and next day it was Madhu, Sunderlal Bahuguna's daughter in her early twenties, who under took to face the contractor along with a few children from the ashram. She was not even allowed to go near the site of felling by the rough elements gathered there, but she was able to register a protest even on this day.

Meanwhile Shikhar brought a procession of nearly 100 villagers to the forest including some labourers employed in felling work a few days back who now took the initiative in stopping the felling. Some local women, related to the labourers who had been brought from a somewhat distant village surrounded them and harassed them in gentle yet provocative

ways—'O Brother-in-law, how brave you are that you lift your axe on the trees hugged by your sister-in-iaws". It was impossible for the labourers to continue their work in these conditions and when the contractor and his labourers finally decided to discontinue the work, the local villagers accompanied them for a long distance on their trek back to ensure that they really went away.

Meanwhile the movement in the Malgaddi forests in the Badiyar region about 30 kms. away from the town of Sri Nagar, was in full swing. Although this region was new to them, on getting news of the planned felling and appeals from some local people to resist the felling, two Chipko activists Kunwar Prasun and Vijay Jardhari had reached this area some days before the contractor, and has started roaming the interior villages to spread their message. Since last year some of these villages had been badly affected by landslides in fact five people had perished in the village of Dhaldhaung—the villagers' initial response to the message of the Chipko movement was encouraging, but later the department officials resorted to the devious tactic of covert bribery of the influential local people by renting their houses at high rates or providing them jobs and offering better facilities like drinking water and education to the village. They also held out threats to other people, such as the military personnel on leave in the villages, of legal action against them if they participate in the Chipko movement. In this way they were able to buy some local people and break the moral of others. One of the most important local people whom they could win over to their side was Mahtab Singh of Malgaddi village who was manager of the nearest high school from which the Chipko activists had initially hoped to draw most of their local supporters.

Due to this carrot-and-stick policy pursued by the local officialdom to keep away the local people from the Chipko movement, the Chipko activists initially had a lot of difficulty in mobilizing mass support and even in meeting their minimum needs of food and shelter. Since during the first few days only two Chipko activists were present to protect the trees, they often remained hungary and unsheltered in the bitter cold of this Himalyan forest so that trees may not be axed in their

absence. But gradually their undaunted efforts started hearing fruit, and their message spread, ironically first among the very labourers engaged in the felling of trees and with whom the Chipko activists came in prolonged contact during their stay in the forest. Often the labourers offered food to the activists and on one occasion even secretly disclosed that though they are forced to fell trees now, when they go back to their villages to Himachal Pradesh they will start the Chipko movement there also. They enjoyed hearing the songs sung by the Chipko activists in Garhwali, and the slogans of the Chipko activists had become quite familiar to them.

Slowly the people from surrounding villages started joining the Chipko processions, and hugged trees to protect them. The momentum picked up after the arrival of Sunderlal Bahuguna and the start of his indefinite fast to demand a moratorium on the felling of green trees People from far off villages came to see him, and listen to the message of the Chipko movement. Subsequently he was arrested and taken to Tehri Jail and from there to Dehradun Jail (He broke his fast after 24 days when the State government agreed to hold talks with him on the question of a moratorium on green felling but little emerged out of these talks).

Meanwhile Chipko activists kept visiting the villagers regularly, and collected one loaf from each house for their food. This brought them into contact with all the families of the villages, and helped to break the communication barrier. During these visit the Chipko activists sang folk songs to the tune of a harmonium and shouted slogans on a hand-mike which immediately attracted the attention of the villagers and they gathered to listen to the call for protecting trees.

Not only men but even women came out of their kitchens and the children from their playgrounds to hug the trees. One otherwise timid woman openly confronted her elder brother-in-law who had sided with the contractor and took him to task. Among those who participated in the movement was 85-year old Chander Singh and 8-year old Narinder who made the labourers' task impossible by hugging one tree after another on 10th January.

The students from a high-school situated 10 kms. away at Nagrajdhar had been regularly pouring into the forest. Later the students of the local school at Dhaddi also overcome the pressures of their principal who had forbidden them from joining the movement and started participating in its activities. One student Asvamedh studying in the seventh standard daily attended his school only upto the half-time, and then joined the Chipko activists in the forest. Once a visiting official told Bahuguna, apparently to annoy him, that his companions had lured away children to to the forest by offering them two toffees each. To this Bahuguna responded that if this was the case then the officials should take back the children by offering them four toffees, the official had no reply and lurked away ashamed.

On some occasions the forest-ranger was so frustrated by the never-say-die attitude of the Chipko activists that he asked some labourers to fetch thick ropes and tie the activists to the trees which they were so fond of hugging, but the labourers somehow evaded this order. On another occasion the ranger harassed the labourers to continue sawing the trees even when an activist Vijay Jardhari was hugging it, with the result that the teeth of the saw struck Jardhari on his leg and he was injured. After this incident, the labourers clearly told the officials that they had come to cut trees and not human beings.

Thanks to this continuous activity, no felling of trees took place after 15th January.

On 31st January, Sarop Singh, a 50-year old enthusiastic supporter of the Chipko movement in Danda village, heard the welcome announcement of the cancellation of the felling at Amarsar and Badiyar Gad in the 8.45 p.m. news bulletin on his transistor radio. First of all he gave the joyous news to his neighbours and then it occurred to him that if the news reached the women activists of the Chipko movement sitting in the Malgaddi forest five km. away, what joy it would give them, Vimla Bahuguna, the wife of Sunderlal Bahuguna, had come to Badiyar Gad along with six other women from near her village and had since then been living in the Malgaddi forest amidst great difficulties.

As they had just finished their dinner and were discussing their future plans, these women were startled by a lone cry of the familiar slogan. 'Krur Kulhara Bhagega' (The axe will be chased away) reverbating in the distant hills. Slowly this voice came nearer and nearer, and then they could make out the figure of Sarop Singh, a lantern in hand and running very fast despite his age, so that he could give the good news at the earliest.

Many Branches

11 SINCE its inception in Mandal about five years back the Chipko movement has spread to almost all districts of Uttarkhand in one form or the other. In most but not in all areas the movement has been inspired by the Sarvodaya ideology, and within the Sarvodaya activists there've been differences of opinion regarding the aims of the movement. Due to these differences, it's only natural that the form of movement differs from one part to another.

In Tehri Garhwal district, the Chipko movement is identified with the name of Sunderlal Bahuguna and his small but dedicated group of activists, including Dhum Singh Negi, Kunwar Prasun, Pratap Shikhar, Vijay Jordhari and some others. The movements organised by these activists in Hemvalghati, Badiyar Gad and Amarsar have been described earlier; this chapter deals with the movement in some other parts of Uttarkhand.

Nainital town is among the most pictureseque hill-stations developed by the British in India. Today this popular tourist-resort which also serves as the headquarters of large district of the same name has a high concentration of students many of whom are politically conscious and incensed over the exploitation of the forest-wealth of Uttarkhand by outside industrialists and contractors.

In the year 1977, this resentment was accelerated when the Forest Minister of U.P., after undertaking a survey of the forests of this region in the company of some prominent contractors declared glibly that silvicultural regulations were being adhered to and no serious eclogical damage was being caused.

In October, the functionaries of the forests movement had demonstrated against the auctioning of forests resulting in their postponement. The new date was fiixed at November 28. As the day drew nearer, the administration took several steps to ward off any mere attempt to prevent auctioning of forests. Armed police numbering about 100 was summoned to the small town on the two days preceding the auction. This police was also paraded on the roads of the hill station to inform the forest movement functionaries of what was in store for them if they dared to resist it. To complete its arrangements on the night of the 27th the administration also issued warrants in the name of prominent leaders of the movement. Subsequently they went underground.

Next morning a group of people gathered in the Nainital Bazaar and started singing folk songs voicing anger and distress at the bleeding of forests. The officials were also warned that unless the auctions are stopped resistance will be taken up at the village level and then the police will not be able to crush it. All the time the demonstrators were surrounded by a police squad. Early in the morning seven functionaries of the forest movement had already been arrested and transported to Haldwani Jail in the terai region of this district. Later as the number of people joining the demonstrations increased, some more leaders were forcibly pushed into a waiting van and whisked away.

After the arrest of the leaders no one was left to guide the demonstrators and maintain peace. Hence a violent clash between the demonstrators and the police could not be avoided for long. Bullets, tear gas shells and lathis all were used to break up the demonstrators.

Meanwhile some elements set on fire the Nainital club building located nearby causing heavy damage. This tragic incident has been used time and again to give a bad name to the Chipko

movements as one indulging in arson but the functionaries of this movement at Nainital have denied their involvement in this incident in very strong terms.

Subsequently more arrests were made by implicating leaders of the forestry movement in acts of arson and violence. On 16th February students carried out a procession in Haldwani to demand the release of their arrested companions, but the PAC force posted in the town retaliated by mercilessly beating the processionists. Several students coming from Ramnagar to Haldwani to join the protest demonstration were stopped mid way and arrested. All in all 53 students were arrested on this day. The presence of the then State Minister for forests in Haldwani on this day and his alleged hand in the beating of the students added fuel to the simmering discontent against the exploitative forestry system.

Thus started a spate of protest demonstrations all over Uttar Khand, involving mainly the student community, to protest against the Government's forestry policy and the arbitrary arrests of students leaders. Hence the student community became actively involved in the forestry movement.

Meanwhile preprations were being made in the Dwarahat region of Almora district to launch another movement for saving trees. Here the forest corporation planned to fell 6000 of the Chanchridhar forest which was located in the catchment area of the Gagas river. A vast procession of nearly 1000 people including several students marched into the forest beating drums and singing folk songs. Many of them camped in the forest for over a week till the forestry department relented to their demand and further felling of trees in this sensitive catchment area was cancelled.

Some more fellings by the forest Corporation were subsequently opposed in Almora district, first in the Janoti Palri region and then in the Dhyari region. In the later confrontation an armed PAC force was posted in the forest where fellings were to be carried out, though fortunately a violent confrontation was avoided. The popular slogan at Dhyariu was "Trees cannot be cut till local industries are established".

This concern for setting up local industries based on forest produce is shared by many Chipko activists in Chamoli district where the Dashauli Gram Swarajya Sangh has continued to make rapid strides in expanding its activities. At some other places also the forestry department has lately quite willingly provided resin, timber and other forest-produce for starting local small-scale industries. There have been signs of growing co-operation between the forestry department and the Chipko activists at some places.

Those activists who now work in cooperation with the forestry department do not press for a total ban or moratorium on the felling of green trees. After all some felling is needed at least to feed the growing number of local industries to which these activists themselves are parties. In addition they are willing to allow the forestry corporation to carry out its felling operations in areas which they do not consider sensitive enough.

In sharp contrast Sunder Lal Bahuguna and some other Chipko activists have demanded a complete moratorium on the felling of green trees in Uttarkhand. The local demands of timber for constructing houses should be met as far as possible from what they call the dead, dying and diseased trees and only to meet some very urgent needs are they willing to concede very limited green fellings of trees that too only on the relatively less steep slopes.

Sunderlal Bahuguna does not favour the felling of green trees on these entire slopes for some years for meeting the needs of industry, big or small. Till sometime back he had himself pleaded for setting up local cottage industry based on forest-produce, but today he is convinced that a tree can offer much better livelihood in the form of its long-term supply of food, fuel and fodder than in the form of timber for industrial use. His opposition of local forest-based industry has isolated Bahuguna from several other activists, but he has struck to his views.

Nurturing the Tree

12 ACCORDING to the Draft Fifth Five Year Plan of the Forestry department of Uttar Pradesh, Volume II, 1974-79, a timber trend survey had revealed an extra shortage of raw materials for the forest-based industries like match, plywood, hardwood, particle board, packing cases, katha and furniture. The draft goes on to add,

"In U.P. there is a great dearth of raw materials even to feed the existing units of these industries. It is, therefore, essential to raise plantations of suitable species not only to develop the industrial potential to meet the rapidly growing needs but also to increase the productivity of our forests.

"The gulf between the demand and supply is too wide to be bridged only by an intensification of existing forest management which is heavily weighted in favour of slow going species with long rotations. The trend is towards the use of more and more reconditioned and processed material in place of wood as such. The requirement of various species of wood for preparing processed material is anticipated to increase at a very fast rate. There is greater demand for species which can be sliced or peeled or pulped for fabrication into a very wide range of products for the consumers. Traditional hard timbers like Sal need to be gradually replaced by species which are softer and faster growing.

"The previous Five-Year Plans laid emphasis on plantations of species, generally for the plywood, matchwood and wood working industries. This emphasis has now been very much intensified in the context of the overall and acute shortage of fast growing wood for paper, rayon, particle etc".

Clearly the forestry department's management practices will continue to encourage the growth of commercial species of trees in the terai and hilly tracts of Uttarkhand. The trend may be further accelerated by the international organisations like the World Bank in areas of forest-concentration in India such as Uttar Khand and Bastar in the name of assisting afforestation work but in reality for securing more raw material for forest-based industries in developed countries. According to a recent publication of the Wordlwatch Institute, USA (Planning for the Future : Forestry for Human Needs by Erik Eckholm) about one-third of the world's industrial wood is traded internationally and four-fifths of the trade originates and ends in developed countries. Each year the average American consumes about as much wood in the form of paper, not to talk of other uses, as the average resident in third countries burns as cooking fuel.

As forest management continues to move further in favour of commercial exploitation, where does it leave the hapless of these hill-villages. In the past the main feature of most afforestation programmes here has been that they have been undertaken neither by the people nor for the people, and precisely for this reason they have failed miserably.

According to the Working Plan Report of the Uttarkashi Forest Division in the 13 years from 1961-62 to 1974-75, tree planting work was undertaken only over 2,773 hectares against the target of 4,251 hectares and even over this limited area the effort has been largely wasted because of neglect. In the Chakrata Forest Division, the survival rate of the plants was only 4 per cent, and in some areas as 2 per cent. The deodar trees mostly located away from village habitation recorded a survival rate of 11 per cent. On the whole the survival rate in the afforestation work undertaken by the forestry department has been extremely low. The reason is that the labour-contractor who undertakes to carry out this work is

only interested in getting his money and the villagers have no interest in nursing saplings of pine and other trees of the commercial species.

However some experimental work on undertaking afforestation work with the involvement of people has been undertaken, and the results have been encouraging. In Gopeshwar small patches of land have been leased to individual families for planting trees to meet their own requirements on a sustained basis. In Almore a plan to plant trees over 7000 hectares with the cooperation of the local people has been undertaken. Under this plan trees with high water conservation properties and those providing fuel add fodder to the people are being planted in an area enclosed by stone walls. The responsibility for guarding these trees will be vested with the villagers.

Many villagers in Uttarkhand have an old tradition of appointing their own forest-guards for reserved oak forests by collecting Rs. 1 or 2 per family in the village. Near Rawat Gaon village in Tehri Garhwal district is a 10 sq. km forest of oak and pine trees over which the six surrounding villages have collective ownership About forty years back when a landslide caused heavy damage in Rawat village, the villagers were motivated to undertake the management of these forests on the basis of sustained yield and conservation. Later their example was followed by over 20 villages of Jalkut valley. The working Plan of the Uttarkashi Forest Division clearly states that whenever the forests near a village were handed over to the village-community for management and people have been given adequate rights over it and have appointed their own forest-guards, the forest has been well-protected, the vegetation has suffered no harm and the lopping operations have also been properly under taken according to the regulations".

The lessons of the part-experience for future afforestation work are clear. First of all only those species of tree from which the local population can benefit on a sustained, long-term basis, in the form of obtaining water, fuel fodder, fruit, and fertilizer from them should be planted. Secondly, the local villagers should be given adequate rights for benefiting from these trees on a sustained, long term basis. Given these two-prerequisites, the most important element for the success

of afforestation plans—the involvement of the local people in planting and nurturing trees—is automatically achieved.

On what levels should this people's afforestation programme be undertaken. Only on panchayats and civil-soyam lands ? In several villages such land is non-existent or almost so, and in most other villages and this land is badly depleted. Therefore, there is an urgent need to extend this afforestation programme to reserved forests as well. The areas where deodar plantation are raised will have to be planted with oaks, walnute, chestnuts, and highland mulberry. Similarly in chirpine areas mulberry, bhimal, and figs etc. will be planted. The existence of broad-leafed species also with them is necessary for the survival and good health of the coniferous trees themselves, as we have already seen in Chapter 7.

Recently some Chipko activists have taken the lead in undertaking afforestation programmes, mostly on their own. In June 1976, the activists from Chamoli district participated in an intensive afforestation programme to save Joshimath town from skinking. Later they also planted, in cooperation with sister organisation such as the Malla Nagpur cooperative and the Tangsa Gram Swarajya Sangh, thousands of trees in the ravines of the Birahi Ganga. In Almora an organisation of local youth called the Parvatiya Yuva Morcha led by Shamsher Bisht and Puran Tiwari has also undertaken afforestation work on a large scale.

Trees, like men, grow slowly and only after about two decades can they start playing the ecological role of soil and water conservation, as expected of them. Thus even if the afforestation programme suggested above is undertaken immediately it will take another two decades for its benefits to be realized. Meanwhile to save the badly mauled ecology of the Uttar Khand Himalyas from deteriorating further, the following steps need to be taken immediately.

1. A moratorium on the commercial exploitation of green trees in the most sensitive area of the catchments of Alaknanda and the Bhagirathi upto Dev Prayag for a decade or two or other appropriate time span. Only dead, dying and diseased trees should be felled in these area during this period.

2. A similar moratorium on the felling of green trees in areas which are very sensitive from the geological point of view i e. where the geological formation is very young, weak and unstable.

Dr. K.S. Waldia of Kumaon University, authority on an Himalyan geology who was recenty awarded Dr. Shanti Swarup Bhatnagar award for his special research work, disclosed after the Bhagirathi disaster that movement is slowly and continuosly going on in the junction zone between the higher and the lower Himalyas. This belt extends from the upper catchments of the Tons River in Himachal Pradesh to the upper catchment of the Kali Sharda river in U.P and Nepal. The areas where big landslides occurred during the last two years Roharu tehsil in Himachal Pradesh, Purola tehsil in Uttarkashi, Kanodia Gad in Uttarkashi, the sinking town of Joshimath in Chamoli district, villages like Baghar in Malla Dasspur of Almora district and the adjoining villages of Dharchula district in Nepal-fall in this zone. As a safety measure against the natural calamities Dr. Waldia has suggested a ban on green fellings and the use of explosives in this zone.

3. A moratorium on the felling of green trees on slopes of over 50 per cent in all catchment areas.

4. A moratorium on the felling of green broad-leafed species of trees providing fodder and other necessities to local people in all areas where the surrounding population is heavily pressed for meeting these requirements.

5. In all other areas the felling of trees, the tapping of resin, and the collection of herbs etc. should be done strictly according to carefully laid down norms.

6. Rolling and dragging operations should be banned in all areas.

7. The minimum needs of local villages for timber for construction purposes should be fulfilled on a priority basis.

Wherever these requirements are not met, the Chipko activists should offer peaceful protest In addition they should also organize protest against indiscriminate blasting of these mountains by dynamite in all geologically sensitive areas.

It should be possible for the forest department to attract local volunteers for afforestation work as long as it is carried out

keeping in view local aspirations, through gram panchayats and local self-government bodies. Therefore the Chipko activists should concentrate at the present juncture on organising protest-movement against the commercial exploitation of forests. After their above demands have been met, of course, the Chipko activists should whole-heartedly concentrate on a people's afforestation programme.

If the above demands for the Chipko movement are accepted, there would be an inevitable decline in the supply of forest-based raw material and several ways have to be found to live with this shortage For example, cement can replace timber in the manufacture of sleepers. Similarly sugarcane waste can be used in the manufacture of paper. The exports of forest-produce can be curtailed. Still economy will have to be exercised in the use of paper, furniture and other forest based industries. The present day wastage in the processing of forest-based raw materials should be reduced. Possibilities of the recycling of waste papers and other forest-based produce should be explored Other technological answers may be found to get over the raw material shortage if appropriate attention is paid to this area.

To some this may sound like paying too big a price for the protection of forests of Uttar Khand But the price which we are paying in the form of destructive floods, and will do so on increasing scale if this depletion is further allowed, is even greater.

As far as the economics of scale permit, the production of the forest-based produce should be carried out within this region of poverty and unemployment. The excessive favour shown to big industrial units in selling forest-produce to them at dirt cheap rates should be immediately discontinued. Such practices discourage the research for alternative materials other than forest-based raw materials for manufacturing these products.

In a forest near the Ghanshali region of Tehri Garhwal district the morning sun rose in all its glory. Than a few flames were observed and as no one came to extinguish them they spread rapidly. The expanding fire was caught by a tinpot full of resin hanging on a pine tree and then flames

shooted dangerously high. As more and more pine trees were engulfed, the accumulated resin helped to spread the fire far and wide

The surrounding villagers who had gathered to witness the spreading fire throughout stood as mute witnesses to this destruction At the early stage of the spread of fire they could have brought the fire under control had they tried but they did not want to do so. Not that they were not daring enough, they just did not care.

In fact in some such cases it is even alleged that the villagers themselves are to be blamed for causing forest fires. It is seldom possible to confidently confirm or deny such allegations but it is true that sometimes the villagers stand to benefit rather than lose from such fires. The pine trees which impede the fertility of their agricultural land are destroyed. Timber of dried trees becomes accessible to them near their houses. On forest land affected by fire grass sprouts abundantly, which is easy fodder for their cattle.

This is the tragedy of the forestry-system in many third world countries. The traditional protective relationship between man and forest has broken down completely. It has fallen to the lot of protest movement such as Chipko movement in the hills of Uttar Khand to reverse the trend and work for a forestry-system which will re-establish this protective relationship under which the villagers obtain their requirements of fodder, fuel and other necessities while at the same striving for their long-term health.

Today the drift towards deforestation tends to be self-accentuating. During the first stage the forests are managed in such a way as to encourage the growth of coniferous species and these are carted out for industrial use. The villagers, unable to get adequate fodder, become increasingly dependent on agriculture for their subsistence, and at the same time the fertility of the existing agricultural land continues to fall due to soil erosion. Subsequently pressures build up to clear more forests for conversion into agricultural fields.

The task before the Chipko activists is an enormous one, and the odds against them are heavy. In recent times the authorites have pursued a strict policy and also resorted to rumour

managering to wean people away from this movement neglecting the fact that what the Chipko movement is fighting for is the long term welfare of the people of the hills. They have encouraged the spread of rumours that this movement wants to deny meeting their basic needs of timber by banning felling of trees. Among the labourers the Chipko movement is being propagated as a movement which seeks to take away their bread.

Whenever the Chipko movement is waged, the authorites try to buy away the influential persons by offering the covert or overt bribes like renting their homes at high rent or providing them jobs. The villager community as a whole is sought to be lured away promising them collective benefits such as the establishment of a school or availability of drinking water facilities if they keep away from the movement. Local labours are recruited from the surrounding villages. On the other hand the activists and the villagers who extend support to them have been threatened in several ways including threats of being beaten by hoodlums or legal action being taken against them for obstructing place.

In Nainital and Almora several activists including the firebrand Puran Tiwari have actually served prison sentences for activities directly or indirectly related to the Chipko movement.

In addition to facing an increasingly hostile administration the Chipko movement is also unfortunately experiencing increasing divisions within its own ranks on issues such as the importance to be given to the demand for local industries and ecological objectives and also over the divergent ideologies of the activists. Vested interests have also successfully tried to exploit their differences by playing off one section against the other. The forestry department has also sought to confront some activists and other socially alert or influential persons of this region by offering them covert or overt bribes such as providing contracts or offering them raw materials liberally.

Today the activists of Chipko movement face stiff opposition from several vested interests who benefit greatly from the present forestry system but no less important is the danger from within. Clearly the need of the hour is that all honest acti-

vists should come together and sink their relatively minor differences in perusal of the larger objectivs of re-establishing a protective relationship between man and trees.

And if the state government wants to avoid finding a place in the history of this region as an anti-people government continuing the traditions of the colonial government, then it will have to get over the pressure exerted by the vested interests in the form of the contractors and industrialists and the corrupt politicians and bureaucrats and look at where the real welfare of the hill people lies.

The vast population of the forestry people spread all over the third world countries will look anxiously at the future struggles of the Chipko movement in Uttar Khand.

Forest Labour: Coffin for Relief

13 ALL hopes of his old parents and six younger brothers and sisters were centred on the 20-year old strapping youth, Maya Ram of Kangar village in the Bhilangana Block of Tehri Garhwal district. Lifting heavy logs in distant forests of Himachal Pradesh since he was a mere boy of 14, Ram had tried hard to fulfil the aspirations of his parents and provide support to the poverty struck family. Not only this, by continuously squeezing and reducing his expenditure, he had even saved a little money, and was engaged to be married to a girl in a neighbouring village.

Tragedy struck Maya Ram last year in a forest of Nachar Tehsil in Kinnaur district of Himachal Pradesh, and destroyed his small world of small joys aud aspirations in one cruel blow.

That day Ram had to carry a 2 quintal heavy sleeper (tree sawed into flat timber) across steeply sloping terrain of over a hundred meters. He had already carried logs across it about half a dozen times, and had experienced great difficuity in negotiating a particular stretch. But the pressure of work that day was great, and the accumulating sleepers in the forest had to be cleared hurriedly. There was no time to construct a terrace on this slippery portion, or improve it in other ways. so Ram had no option but to accept the risk, as indeed he had

done day in and out since he had started lifting logs six years back, and continue the work.

Suddenly his right foot slipped and he fell tumbling down the slope, the two quintal log falling heavily on his right-arm. There was a cracking noise, and Maya Ram fell uncon scious.

There was no provision of any first-aid in the forest, and the labour-contractor just wasn't interested in taking Ram to a hospital. But somehow his companions arranged to take Maya Ram to the nearest hospital in Rampur. For several days Ram remained in the hospital, his arm enveloped in a heavy plaster. When the plaster was removed he realized that his right arm was useless now as he could not even stretch it.

Today with their main breadwinner crippled, Maya Ram's family is steadily moving from bad days to worse. And his engagement has been broken off. A group of Nepali labourers felling a tree in a forest near Nagni village of Tehri Garhwal District had nearly cut a tree and were trying to pull it in the proper direction so that it did not fall in the deep valley below. The last labour among the group tugging the rope had tied the rope around his waist so that it should not slip. Suddenly there was a cracking noise and the giant tree lurched menacingly towards the labourers. All of them left the rope and rushed for safety, but the last labourer could not free his waist from the rope within the short time. The tree fell heavily on him and then both rolled down into the deep valley below. Death was instantaneous.

When he heard the piteus wails of the widow and orphaned daughter of the labourer, a visibly angry contractor appeared on the scene and tied a cloth on their mouths. He then put a few rupees on the widow's hand and directed her not to complain about her husband's death to anyone or else she would be implicated in a case of poisoning him.

These are not isolated cases. Ever since the British first embarked on their commercial exploitation, the forests of the Himalyan region have continued to provide rich profits to industrialists and contractors, but the labourers who actually

axe the trees, saw them into sleepers, carry the sleepers on their backs, roll them over hillsides to motor-roads, swim in ice-cold rivers to assist their flow and engage in various other hazardous operations have remained tied in the worst form of subservience oblivious of the fabulous profits their work yields to a handful of persons.

The rich and resourceful persons of the plains known as 'maldaars' in the hilly region, to whom the forests are auctioned, seldom enter the forests leased to them. For carrying out their work, they employ a number of labour-contractors who are mostly influential local people who can mobilise between ten to a hundred persons from their areas to work as forest-labourers.

Although they restrict their own work to contributing capital, the maldaars make sure of fat profits for themselves by obtaining the signatures of their contractors on an agreement over the term of which the latter have little say and which are exceedingly favourable to the maldaars. Tied to the obligation of securing fat profits for his 'master' and also to ensure a tidy margin for himself, the contractor exploits the labourers badly.

In recent years, following strong resentment in the hilly region against the contractor system, the government has made an effort to dislodge the maldaars still remain well-extrenched in several areas, the Forest Corporation of Uttar Pradesh, a State government undertaking, has been directly undertaking tree-felling and other timber operations in more and more areas. However, the Corporation has no direct contacts with the forest-labourers who continue to be exploited in the same reckless manner, corporation or no corporation.

The rampant poverty in hill-regions ensures that the contractors do not have any difficulty in moblising enough labour to work at low wage rates in revolting working conditions. In fact these labourers anxiously wait for their contractors to return from the auction of forests so that they can obtain their advance payments, give it to their families and set out to work.

Usually the contractor does not send his labour to a forest near the village but to one that is situated at a considerable

not employed directly by the maldaars or by the Forest Corporation, it is easier for them to evade the responsibility of providing compensation. In a rare case a committed Tehri-based lawyer, Vidya Sagar Nautiyal has fought some legal battles against heavy odds for securing adequate compensation to forest labourers or their dependents but the few such cases are exception to the general rule of the helpless labourer or his family not getting any justice.

Despite all the difficulties and hazards of the life of a forest-labourer, the wages he receives are very low. A review of these wages paid to forest labourers conducted in 1972 had revealed that even the money wages for lifting and rolling logs had remained the same and those for sawing had increase only marginally, both of them actually declining in real terms. The enaction of minimum wage laws for forest labourers and their organisation in some forests has since helped to increase the wages paid to the forest labourers of Uttarkhand, but still these remain quite low in view of the hazardous nature of the work.

Sawing work is paid for on a piece-rate basis at the rate of Rs. 6 per sleeper of pine trees of the size 12 feet X 10 inches X 5 inches. Since a labourer after working throughout the day can at the most prepare two sleepers, his wages amount to Rs. 12 per day. Till 1974 before the enaction of minimum wage legislation the worker was paid Rs. 5/- per day at the rate of Rs. 2.50- per sleeper. For lifting work a labourer lifting a sleeper for about 100 meters is paid 50 paise per sleeper, while before 1974 this rate was 25 paise per sleeper. Since a worker working very hard throughout the day can at the most handle 35 sleepers in a day, his wages comes to Rs. 17.50 per day but since he is forced to rest for one day after two days of heavy work, his daily wage is also about Rs. 12/- per day. The labourers engaged in felling operations get a maximum of Rs. 10 and an average of Rs. 7/- per day. On the days when labourers cannot work due to injury or disease, they do not get paid, and laws be hanged. Some labourers who are able to get locl-employment (in forests near their home) in the task of extracting resin from pine trees have better potential of earning adequate money, but the local contractor who employs them dupes

them in a number of ways through paying them in kind with the result that they also seldom get properly paid.

Some money is deducted for the rotten rations supplied, while the labourers have in turn to pay some money to their companion carrying out such common work as preparing suitable paths for carrying out lifting work Moreover since the wages are paid on a piece rate basis depending on a number of factors such as the measurement of the tree and the sleeper, the distance traversed by the workers carrying the logs and so on, it is easy to dupe the illiterate and indebted workers in a number of ways. On the whole, forest-labourers toiling throughout a month cannot hope to earn more than Rs. 250/- to Rs. 300/-.

When they first start working as forest labourers. many young recruits are so horrified by the way they have to work and live that they want to run away. But they do not have any money to go back and in any case they have to pay back the advance due to the contractor. Where such cases have occurred, however, the contractors have retaliated by exerting pressure on their families in the villages by implicating the runaway labourers or their families in cases of cheating and fraud.

These horrible working and living conditions of the labourers have continued to exist on a wide scale despite the fact that orders issued in 1974 had provided for the compulsory provision of several amenities to labour including drinking water, better rations, medical, regular payment and compensation in the case of injury and death. But since the labourers have continued to remain at the mercy of the contractor, they have been deprived of these legally existing facilities and amenities on a large scale. In this situation the only way of improving the lot of the forest-labourers is to do away with the contractor-system altogether, and organise labour cooperative which would be in direct contact with the corporation for carrying out the various timber operations.

As in various other areas of forestry, it were the Chipko activists of Uttarkhand who took the lead in improving the lot of the forest-labour and it was mainly as a result of their efforts that the minimum wage legislation was implemented in Uttarkhand, and a Forestry Corporation with the objective of

distance from his home. In the forests of Uttarkhand it is common to come across labourers from Himachal Pradesh, Kashmir and Nepal. On the other hand, the labour from Uttarkhand specialising in lifting logs can be found in several hill-regions outside Uttarkhand. The reason behind employing the labourer away from his house is that such labour is more at the mercy of the contractor and he can take as much work out of this labourer as he wants. Another advantage of migrant labour is that there is nobody to make inconvenient inquiries or press for compensation if the worker is injured or dies in the course of this work.

The work of forest labourers is extremely tiring and exhausting. The labourers employed in lifting sleepers cannot work for the third day after working for two days, and if they persist in doing so they will collapse. Carrying one to two quintal weights on their weak and undernourished bodies across dangerous terrain day in and out, starting in their early teens and continuing right till they are incapacitated or otherwise rendered incapable of pursuing this exhausting work any longer, these unfortunate children of the Himalyas truly lead the life of the beasts of burden. Their toes are worn out from daily trudging on difficult terrain. Their back bear the marks of the heavy logs carried by them for several years, and after years of continuous work it becomes difficult for them to lie on their back. Their joints also start suffering continuous pains, which makes them incapable of rendering any mannual labour at a relatively young age. The labourers, including women, engaged daily for long hours in sawing operations involving heavy breathing fall easy victims to tuberculosis.

Quite apart from the fact that the work done by the forest labourers is of an extremely exhausting-nature-most of them look a decade older than what they actually are and complain that the yare incapable of doing any hard work when they return home after working in the forests for a few months, ita lso makes them very susceptible to injuries. The labourers engaged in felling trees have to climb over 70 feet high coniferous trees which do not offer much support for climbing and carry out lopping operations (or cut off the branches of the tree), all the while clinging to the tree in a precarious position. The cases

of these labourers falling from these trees into the deep valleys below and seriously injuring themselves or even losing their life, are not infrequent. Similarly the labourers lifting heavy sleepers live with the constant hazard of slipping on dangerous slopes and having their limbs crushed by sleepers. Other labourers while swimming in ice-cold rivers to assist the flow of logs are sometimes carried away by the rapid current of the river and are drowned.

Despite these difficult and hazardous working conditions the minimal rations provided to these labourers by the contractor is generally of the poorest quality available in the market at the cheapest rates. Generally the only eatables available to the labourers are wheat, rice, a pulse, salt and some edible oil for cooking purposes. Quite frequently when no natural source of water is available nearby, the contractor does not bother to make any arrangements for regular supply of clean drinking water as well as of water needed for other purposes. The result is that the forest labourers often remain thirsty or drink dirty water, and even the minimum norms of hygiene have to be neglected. The labourers engaged in felling operations have to live in the open, even in the bitter cold of the Himalyan winter, although those engaged in the sawing and lifting operations are able to construct small huts from the wood that becomes available at the later stage of the work. Even these huts remain wholly dark at night, as kerosene oil is not included in the meagre ration supplies of the labourers.

In the event of injury or illness no medicare is available nearby and the workers usually cannot afford to go to distant hospitals. Due to all these reasons a large number of deaths take place at the work sites. In most cases the dead are burried under the cover of darkness. Such is the hold of the contractors over their labour-force that the labourers hesitate to talk about the death of their companions, or inform their family members of the tragedy. A sum of Rs. 20 or so to cover the cost of a coffin is in some instances the only compensation provided. Significantly enough, when the widow of a labourer who had died in similar circumstances approached the maldaar to give her some compensation he replied, "I do not employ any labourers; I employ only contractors", Since the labourers are

eliminating the contractor system was set up. However, as labour-contractors continued to flourish even under the Corporation, the Chipko activists took a further step to organise labour cooperatives.

For the first time the labourers working in these Co-operatives were provided cards on which were listed all details of the work undertaken by them, as well as details of all the facilities and amenities to which they were entitled by law, and they became conscious of their rights and even asserted them. Labour representatives participated directly in meetings with senior officials, and flourished the cards provided to them (even though most of them could not read what was writen of them) as evidence of their rights). The major share previously usurped by the middlemen was now distributed between the labourers, some of it directly as bonus while some other part was deposited in their account as their saving for which a pass-book was provided to them. Only one-third of the share previously usurped by the middlemen was kept aside for meeting the management expenses, while the remaining two-thirds of the share directly benefited the labourers.

However, the labour-cooperatives could not continue in this healthy state for long. Since no provision was made for clearing the debts of labourers they remained in the clutches of contractors even after the formation of cooperatives opened new possibilities before them. Taking advantage of legal loopholes several contractors formed bogus cooperatives in the name of labourers indebted to them Needless to say, labourers continued to be exploited in the old ways in their so-called cooperatives. The massive sprouting of these bogus cooperatives gave a bad name to the cooperative movement.

Moreover, several Chipko activists were at this moment undergoing a transformation from fighting for local economic rights to some larger objectives. The massive destruction of surrounding ecology taking place where even the so-called scientific felling of green trees took place had opened their eyes to the larger danger inherent in any further deforestation of the ecologically crucial Himalyan slopes which formed the catchment areas of the country's most important rivers. They had hoped that the labour-cooperatives would also be asked to

carry out afforestation programmes by the Forest Corporation but such hopes had not materialised.

As the transformation of the outlook of the Chipko movement as a movement giving more emphasis to local economic rights to predominantly an ecological movement took place, and as the Forest Corporation continued to concern itself only with felling and timber operations the Chipko activists could not possibly continue to carry on this work under their behest while at the same time demanding a moratorium on the green felling. So gradually the same activists who had so painstakingly nurtured these cooperatives had to disassociate themselves from them.

This, however, created a most serious dilemma for the Chipko movement. How were they to convince the labourers whom they had themselves organized for felling and timber operation not to axe any trees ? How were the labourers to be told about the larger national necessity of a ban on green felling when their own livelihood was tied up with this work ?

There is no easy solution out of this dilemma. But it stands to the credit of the Chipko activists that once they had realized the importance of fighting for a total ban on green felling, they did not let the threat of losing face and facing opposition from labourers stand in the way of changing their objectives and strategy.

(This chapter is based mainly on information gathered from Tehri Garhwal district).

Appendix

SOCIO-ECOLOGICAL FACTORS IN CHOICE OF TECHNOLOGY FOR DEVELOPMENT OF HILL AREAS

V. Shiva and J Bandyopadhyay
Indian Institute of Management, Bangalore

I. Introduction

> "The deterioration of the environment produced by technolgy is a technological problem for which technology has found, is finding, and will continue to find solutions"
>
> Sir Peter Medawar,
> Nobel Laureate

The optimism conveyed in the above statement is the twentiethe century extension of a myth that had its origin in the industrial revolution, and constituted of blind faith in the infallible capacity of technology to solve all problems. With the rise of concern and criticism that grew out of the severe environmental degradation caused by technology itself, the myth was not undermined but extended to newer forms. Technology is now claimed to have the built in capacity to rectify its own destructive impacts on the environment.

The above optimism had formed the base of the plans for development in many third world countries in the last 3 decades. The failure of the blind adoption of the western model of growth, with its complete reliance on technology alone, led to some significant criticisms of this model and its presuppositions. Firstly, use of modern technology has been accepted to be synonymous with the economic growth of a society. Implicit with this assumption is the idea of a value free technology in the social, ecological and political perspectives. Secondly, he two concepts or terms, namely, "economic growth" and

"development" are freely substituted for each other, as if they mean the same thing. This assumption creates a paradigm in which economic growth becomes the only exhaustive representative of development. In the words of Samir Amin[1] :

> "Today, as the most casual glance at any relevant literature will show, the two are used interchangeably to designate the same thing. Yet they are concepts, which, although related, deal with profoundly different matters. Growth is essentially a measure of a few relatively easily identifiable units of output; development is a historical process which encompasses not only production, but the entire economic and social life of a nation in transition : its health, education, social outlook, the dynamism of its political institutions, in fact the total life of a nation".

The uncritical idea about progress through technology alone, clearly, ignores completely the delicate and subtle interrelationship between some very important non-technological factors and technological development. In the West the ideas of development were a structural component of a Judeo-Christian worldview of the domination of nature and "rational mastery *over* the world". And these factors, atleast partly, were responsible for the success of the technological revolution. In all traditional societies on the other hand the attitude has been one of "rational adaptation to the world". Besides the role of world-views, certain socio-ecological factors are also important for successful technological development. However, most of the contemporary planners in traditional societies came equipped with exemplars from western literature as a result of their association and training in colonial and neo-colonial institutions. Consequently, the unique socio-ecological factors in the traditional societies are overlooked or neglected in their plans. Though, in India, considerations of environmental factors have been incorporated in planning recently. this has mainly come as a reflection of similar steps in Western Policies and not necessarily directly as a result of comprehensive understanding of the unique constraints in the Indian situation.

The present paper is an attempt to expose the short-comings of a planning strategy that ignores the fundamental differences between economic growth and development with respect

to some examples of the impact of development plans on the quality of life of the people in the hill areas of India. Specia reference will be made of the Tehri region of the State of Uttar Pradesh, though the general features of this paper may easily be extended to other hill areas of India. It attempts to del ineate the components of forestry practices and to analyse them critically in the frame-work of scientific activity. The focal point of this study is the impact of recent planning on the quality of life of the people and the ecology of Tehri region of Uttar Pradesh.

II. Socio-ecological factors in the Choice of Technology for Development

The question of technological choice from the point of view of economics have been discussed by many. [2,3] At one stage the place of the social and ecological factors were not given the due considerations in the policy formulations, resulting in various forms of social tension and ecological crises throughout the world. Taking these into consideration, the United Nations Environment Programme had developed the criteria for the choice of technology. Various national governments, both in the developing and developed countries, have also introduced socio-ecological screening of technologies. This includes the Planning Commission of the Government of India. The United Nations Environment Programme Criteria clearly delineates 2 important socio-ecological factors.[4] Firstly, in the conditions of developing countries, a technology which satisfied the needs of the neediest should be chosen. Secondly, the technology should not bring in any major lack of harmony with the environment. These two factors have very powerful and far-reaching implications in the development strategy of the third world countries Technology has always been used to extend man's mastery over nature. The expansion of the kingdom of man over nature has never been free from ecological side effects. For consistent development the choice of technology should ae examined through both long and short-term and local and far-reaching impacts. The destructive effects of technological change can be remedied only in those cases where the damaged or destroyed resources of nature can be regenerated or

substituted by another technology. If a technology results in a damage which could not be remedied within the sphere of present seate of scientific knowledge, it could not be considered as a good choice. Inview of the above an attempt will be made in the following pages to examine the socio-ecological impacts of the use of various technologies, in the development activities in the Tehri Region of the State of Uttar Pradesh.

II. Impacts of Development Plans in Tehri Region

Tehri is predominently a forest region. At the same time it is the source of all major rivers of the North Indian Plains. Accordingly, extraction of the forest and hydro-electric resources have formed the theme of major development projects in this region, though projects on animal husbandry, irrigation, horticulture etc., have also been undertaken. As far as the use of technology for the transformation of natural resources of this region to goods and services useful to human society is concerned forestry has the most significant contribution.

For the people of Tehri forests are almost synonymous with their livelihood. Forests are the only source of firewood, fodder, fertilizer and water. Thus, the management practices and development projects in the Himalayan forests have a direct impact on the quality of life in the hill areas. Their indirect effects are carried to the whole population of the North Indian plain through the rivers originating in this region. Organised efforts to introduce forest technology in the management of forests in India were started by the British in the late nineteenth century. Following independence a new forest policy was declared in 1952 which recognized the priority of the basic needs of the people in terms of firewood, grazing of cattles etc., and also paid attention to the ecological sensitivity of the Himalayan forests. Unfortunately the socio-ecological factors did not find their due place in practical forestry, which remained unchanged in principles even after the departure of the British rulers, Commercial interests continued to guide the choice of technology in forestry at the cost of neglect of socio-ecological considerations. Neglect of these factors over decades ultimatel started showing visibie signs of acute ecological ditasters and soacl tensions. The root of the social tension is the basicdic

hotomy between the working rules and written aims of the forest departments. An articulation of these working rules is observed in the statement of one of the highest forest official of India. According to him.

> "Public opinion has been slow in recognising the folly of letting the forest suffer serious attrition through the continual operation of the robber economy by the neighbouring population...What the Indian foresters are faced with are big problems of rehabilitation of degraded forests; of afforesting waste, gullied, revined or otherwise ruined lands, of growing more than a million acres of fast growing species suitable for pulp boards and plywood and more than all these the problem of resisting strong pressure from people who either do not understand or do not bother to understand the high place of forestry in the economy of nation",[5]

Thus, the goal of forestry practices in India was clearly set towards serving the needs of the forest based industries. It is again substantiated by a recent suggestion of the Indian Paper Maker's Association. According to IPMA,

> "Virgin fibres such as bamboo and softwood are becoming increasingly scarce and expensive...To overcome the problem of raw materials, the industry can also go in for planned forestry and the State Governments can lease out forest lands to the paper mills on a long term basis for development of forests"[6]

Interestingly, this is an example of the identification of development with enhanced economic productivity, referred to earlier. The actual goals of forestry have been under severe attack in the recent past as being anti-people and anti-ecology. 7,8,9, However, critical analysis has not yet been directed to a scrutiny of the scientific status of forestry. In all the documents of the forest departments it has been declared that the principles of forestry have always been 'scientific' and hence have to remain valid for all people at all times. It should be understood that the label 'scientific forestry' is attached to the *practices* of the forest departments and not to the research undertaken in institutions like the Forest Research Institute in Dehra Dun. These forestry practices are in fact only techno-

logies and not science at all. They solely relate to the productivity of the forests. Science, on the other hand, is motivated by a search for knowledge about the regularities in natural phenomena. It is not an activity guided primarliy by economic returns. The distinction between science and technology is related to complex philosophical issues which are not of direct relevance here. However, without going into these questions it can be agreed that whereas scientific activity leads to kdowledge which is qualified as 'true', technology is qualified as 'successful'. Quite clearly success is measured only in the context of goal directed activity, in terms of an approach to certain well defined ends. It is therefore difficult to justify why forestry as technology would remain essentially unchanged while goals themselves changed in theory through periods of history. For the British the social impacts of their forest practices and the social role of the forests was unimportant because the people were their subjects who were less than human in the ruler's eyes. Neither was the ecological role of forests or the impact of forestry on the environment of the country an important issue for the colonial rulers. The neglect of ecological considerations in the utilization of forest technologies in the ex-colonies did not get reflected in the forestry practices within the home countries of imperial power. Even today inconsistency between forestry policies of advanced countries at home and in the third world cannot be overlooked. Thus, while Japan has extremely strict ecological requirements for forestry within its boundaries, it does not hesitate to campletely destroy vast stretches of forests in Papua New Guinea for its own use. Similarly, while Sweden, famous for ecological considerations in the management of forest resources in Sweden, has conveniently ignored such considerations in the forests of Latin America where Swedish companies have started logging operations in a big way. Unfortunately, even after 30 years of independence the forestry practices of India reflects the colonial policies and the socio-ecological factors are not seriously taken as components in the evaluation criteria of success of forest technology. Success is still measured only in terms of increased "production" and higher revenues---all in the name of "scientific forestry", which seems to be the catchword

of the forest department. Any technology is tied up with socio-ecological factors when questions such as "successful for what ?" "useful for whom?" are raised, To use the term "scientific forestry" for such technology is deliberately misleading since it is an attempt to represent an activity with ideological components as objective and valuefree science. The fact that forestry practices do have an ideology is evident from an analysis by Gupta. While defining the objectives of felling, which *is* the most important aspect of forestry in India today, Gupta[10] idedtified two ways of removal of trees :

> "(i) By removing big sized trees which have reached the age of their economic rotation so that new regeneration comes up...if such trees are not removed, regeneration would not come up and productivity of the area would fall down.
>
> (ii) By doing thinning in younger crops...It has been seen that a properly and frequently thinned crop yields larger quantity and better quality of timber. Hence, thinning is an essential operation during the life of a forest crop".

The above explanation is often found in official papers and appears in discussions with forest department officials. Hence, it is being taken as the most general and widely accepted representative principle. What is conspicuous in the above explanation is the justification of felling solely in terms of increasing the *yield* of timber. No mention here is made of ecological requirements like soil stability etc. Thus a predominently commercial interest is introduced in the garb of "scientific" activity. A second feature of these prescriptions is the lack of preciseness in them. For example, the concept of "Economic rotation" and its exact relationship with a purely botanical process like regeneration is left open and vague. The vagueness in these "scientific" principles, according to our experiences, can come in *handy* in the justification of felling of any tree in any forest - To take a specific example, during a trip to Badiyargarh we were given different justifications for felling of chir-pine trees by a Logging Officer. Firstly, the reason was thinning. When the distances between trees were pointed out to be about 25 feet, the reason was switched

to maturity. The trees were not more than 35 years old and their maturity could not be accepted as biological. However, the officer further justified the felling by insisting that the trees were 80 years in age.

The ideological leaning of "scientific"[5] forestry manifested itself conspicuously in an entirely different situation during our trip to Gangi. Whereas the Badiyargarh forests were very sparse and had been exploited for years, Gangi forests are nearly virgin and the most dense in the region. There were major landslides in the chirpine forests of Badiyargarh but the same were almost non-existent in the rich Gangi forests. Recently however, these virgin forests have been auctioned to a private contractor for felling of fir and spruce trees. In the opinion of the local supervisor of the contractor who was camping in the forests, the motivation for accepting the contract was not profit but service to the forest department. This service was clarified as being the saving of the natural forest from self-destruction. The 'thinning' principal has been the basis for the contract, to improve the health of the forests. If the health is interpreted as the quality and quantity of timber only, then clearly the service motive does not work any more because the primary importance of commercial interest cannot be suppressed. If, on the other hand health is understood with ecological stability the argument is again self-defeating, since nature, quite clearly has the final word in the question of ecological balance. Moreover, a major felling operation, by about 600 workers in a sensitive catchment area of Bhilangana, a tributory to Ganga, cannot be accepted as a product of ecologically viable principles. If one reads between the lines, the contract for felling in Gangi and an attempt to extend the motor-road towards Gangi could be found to coincide. Bhilangana being difficult to use for the transport of logs, a road connection is necessary to make the operation commercially profitable.

The impact of felling on ecology is a fundamental question of forestry about which there should be no doubts when the forestry is claimed to be "scientific". However, in the published writings of two senior officials of the forest department a surprising difference is found. According to Tripathi[11],

"stoppage of fellings carried out by the forest department will only lead to damage of local economy without any beneficial effect on the ravages of floods, soil erosion and ecological imbalance",

Whereas Mathur[12] claims that

"Nature is a great healer and aways tries to heal the wound/scars left on its body by initiating an ecological process called plant succession the moment it is allowed rest or uninterfered with".

Such divergent views on nature cannot be accommodated within the limits of scientific forestry. Thus the "scientific forestry" at best is a vague and confused system of claims, while at its worst it is the vehicle of ruthless and destructive exploitation of nature.

Modern technology has made an entry in the hill areas through some other development projects also. The more important among them are road construction projects, river valley projects, irrigation networks, etc. The impact of these technologies are felt directly and also through their effect on the forest resources. The most serious negative impact of all technologies introduced in the hills is the destruction of forests. Increased agricultural land use to serve the needs of increased population has often been identified as the only major reason for deforestion.[13] However, it is important to note that in Uttar Pradesh whereas 135.8 thousand hectares of forest area have been destroyed by development projects only, agriculture takes account of only 79.7 thousand hectares.[14] Figure-1 illustrates the sociological and ecological impacts of the various forms of technological change in the hill areas. It is interesting to note that in Figure-1 the various aspects of ecological impacts of development projects converge to the loss of topsoil and the aspects of sociological impacts converge to the decreasing quality of life in the hills. It need not be stressed that these impacts are not geographically limited to hill areas only. Through the regular floods and draughts, the silt in the rivers, they *reach* far out in the plains.

Ecological Constrants in Hill Area Development

According to the criteria for choice of technology dis-

cussed earlier, technology can be viewed as leading to development only when it ensures an improved quality of life for the majority o' the people. Ecological constraints play a central role in determining whether technological change can be counted as development. This view does not, of course entail that all technological change be arrested if it transforms the environment. This extreme conservationism is neither possible nor desirable. The crucial question is not the impact of technology on the environment or the more undesirability of such impacts, but rather the assessment of whether certain types of ecological change have undesirable results in terms of worening man's potential for svruival and progress. Such an assessment includes a cost-benefit analysis of various projects in terms of the goods they deliver and the destruction they cause. The ecological crisis in the Himalayas is unique not because destruction has accompanied development. All development involves the partial destruction of earlier structures. The uniqueness of the situation in the Himalayas lies in the fact that the ecological changes in the structurally unstable and young hills, which are the biggest source of water in India, will lead to irrepairable damage. In general the most talked about environmental problems are deforestation, soil plains it is possible to replant forests and to refertilize soil. With affluence and technological sophistication water can be depolluted. Thus destructive effects of technological change can be remedied in cases where the damaged resources can be regenerated or substituted by technology. The basic ecological impact of forestry and other developmental activities in the Himalayas has been the loss of soil. Damage to this soil in a scale that makes the growth of vegetation impossible will lead to irrepairable loss for which technology has no ready answer since this soil is a product of accumulation through centuries. Nor can technology replenish the water in the dried up springs or the ice in the retreating glaciers. And technology is not yet able to provide an alternative to soil and water as basic needs in human life.

No doubt the products of forest industries do satisfy important human needs for the plains. However, when the cost of it amounts to assured destruction of the very basis of survival for a large numt er of people in the hills as well as in the

plains, it becomes necessary to have a second look at the essentiality of the less fundamental needs.

REFERENCES

1. Amin Samir, in *Technology as a social and political Phenomenon* Philip L Bereano (ed) John Wiley, (New York), 1976 p. 381
2. Stewart Frances in Cooper Charles (ed) *Science, Technology and Development*, Frank Cass, London 1973 pp. 99-122
3. Sen, A.K. *Choice of Technology*, Oxford : Blackwell (1968)
4. Reddy Amulya Kumar N, *Technology, Development and Environment* UNEP (Nairobi) 1979
5. *Hundred Years of Indian Forestry* Forest Research Institute, Dehradun, 1961 p. vii
6. Reported in *Financial Express*, Bombay, August 2, 1979
7. Kayastha S.L. and Juyal B.S. *Himalaya : Man and Nature*, May 1978 p. 17
8. Moddie, A.D. *Dialogue* 76-77. Max Mueller Bhavan pp. 171-176
9. Rieger, Hans Cristoph. *Dialogue* 76-77. Max Mueiler Bhavan pp. 119-124
10. Gupta D,P. Himalaya ; *Man and Nature*, June 1978 p. 18
11. Tripathi N,P. Himalaya : *Man and Nature*, May 1978 p. 32
12. Mathur H. N. Himalaya : *Man and Nature*, July 1979 p. 2
13. Ashish Sri Madhava. *Economic and Political Weekly*. June 23, 1979
14. Sharma L.C. *Dialogue* 1976-77, Max Muller Bhavan p. 188

Do not axe these oaks, pines. Nurture them, protect them. these trees the streams get their water and the fields their greenery. how this flower smiles in the forest.

—A Garhwal, Folk S

Printed at Calley Printers, Phone : 561590
Cover design by A. Bannerjee,
Photograph by Kunwar Prasun

Bharat Dogra, 23, is a free—lance—journalist based in New-Delhi.